SOILS INVENTORY
OF THE ALBERTA OIL SANDS
ENVIRONMENTAL RESEARCH PROGRAM
STUDY AREA

L-80

APPENDIX 9.4 TO AOSERP REPORT 122

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ALBERTA OIL SANDS
ENVIRONMENTAL
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APPENDIX 9.4
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L-80
March 1983

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ALBERTA OIL SANDS ENVIRONMENTAL RESEARCH PROGRAM
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These research reports describe the results of investigations funded by the Alberta Oil Sands Environmental Research Program. This program was designed to direct and co-ordinate research projects concerned with the environmental effects of development of the Athabasca Oil Sands in Alberta.

A list of research reports published to date is included at the end of this report.

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Soils Inventory of the Alberta Oil Sands
Environmental Research Program Study Area
Appendix 9.4 to AOSERP Report 122

L-80

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SOILS INVENTORY
OF THE
ALBERTA OIL SANDS
ENVIRONMENTAL RESEARCH PROGRAM
STUDY AREA
APPENDIX 9.4
TO AOSERP REPORT 122

by

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Soils Department

for

ALBERTA OIL SANDS
ENVIRONMENTAL RESEARCH PROGRAM

RMD Report L-80
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March 1983

9.4 PROFILE DESCRIPTIONS AND ANALYTICAL DATA OF SOILS SAMPLED IN THE AOSERP STUDY AREA

Soil morphology, site descriptions, and physical and chemical data for 130 soil profiles from the AOSERP study area are presented in this section. Except for some miscellaneous land units, each of the soil groups are represented by at least one profile description. For many of the soil groups, several profile descriptions are given. A list or index of the profiles described has not been provided, but a search for data about a specific soil group is facilitated by the alphabetical arrangement of soil groups.

The methodology for profile descriptions involves exposing a profile by digging a pit and describing the soil features according to guidelines of the Canada Soil Survey Committee (1978a, b). Most of the terminology and classification schemes used in descriptions are given in the Glossary (Section 9.3). All soil samples were air-dried, crushed, and passed through a 2 mm sieve. Content of coarse fragments (>2mm) entered only into calculations of particle size distribution in engineering test analysis (results in Section 7.3).

All analytical methods have been described by McKeague (1978). Soil reaction (pH) was determined on samples saturated both in H_2O and in 0.01M $CaCl_2$. The latter method has several advantages, one being that it approximates the pH of the solution under field conditions. Nitrogen was determined by Kjeldahl digestion and determining NH_4-N with an ammonia electrode. Organic carbon was determined by difference between total and inorganic carbon contents. Total carbon was measured by dry combustion in an induction furnace. Inorganic carbon was determined by acid dissolution and measuring the CO_2 evolved by a manometer method. The inorganic carbon is reported in terms of $CaCO_3$ equivalent.

Particle size analysis was carried out by the pipette method and by sieving the sand fractions. Electrical conductivity, an expression of the level of salts contained in the soil solution, was measured on a saturation extract of samples using a conductivity cell and bridge, values being reported in mS(millisiemens)/cm at 25°C. Water soluble cations in this extract were measured by atomic absorption spectroscopy.

The cation exchange capacity (CEC) was determined by ammonium acetate and sodium chloride extractions. The latter method measures CEC at the pH of the soil and thus approximates field conditions. Exchangeable cations in solution were determined by atomic absorption spectroscopy. The percent base saturation of samples extracted with ammonium acetate was determined by dividing the sum of cations by the total exchange capacity. The base saturation in NaCl-extracted samples was determined by dividing the sum of Ca and Mg by the sum of Ca, Mg, and Al. The percent difference beyond base saturation is an approximation of exchangeable acidity of the soil.

In organic soil samples, fiber content was determined by washing samples through a 100 mesh (0.15 mm) sieve. This was done both prior to and after rubbing samples by hand. Water capacity was determined by soaking samples in water and determining the moisture content after free drainage from the sample had practically ceased. Volume weight was calculated by dividing the volume of the water-saturated sample into the weight of sample after oven-drying. Ash content was determined after heating samples at 420°C for 16 hours in a muffle furnace. Pyrophosphate-soluble organic matter index was measured by extracting samples with 0.025 M sodium pyrophosphate and determining absorbance of the solution at 550 nm. The absorbance multiplied by 100 gives an index of solubility. In Cryosolic soils, ice content was estimated by measuring water content of thawed samples taken with a frozen soil corer having a 2.5 cm diameter.

The soil descriptions consist of three parts - a general site description, the profile description, and analytical data for the profile. Dashes and blank spaces indicate that the property was not determined. The symbol 'tr' refers to trace amounts detected in an analysis.

DESCRIPTION OF A PROFILE IN THE ALGAR SOIL GROUP - SITE M76-10

Soil Unit: Sampled in DOV1 unit

Location: SW26-88-9-W4

Classification: Orthic Luvic Gleysol, peaty phase (Algar series)

Landform:

  Genetic Material: Glaciolacustrine; fine-clayey

  Surface Expression: Undulating; very gentle slopes

Site Features: Nearly level site; imperfectly to poorly drained; low perviousness; non-stony

Vegetation: Upland mixed coniferous forest

Profile Description:

Om - 15 to 0 cm; moderately decomposed leaves and feathermosses with some needles and wood fragments.

Aeg - 0 to 7 cm; light brownish gray (10YR 6/2 m); silt loam; common, medium, distinct mottles (5YR 5/6 m); moderate, medium, platy; friable; clear, smooth boundary.

Btg - 7 to 25 cm; yellowish brown (10YR 5/4 m); clay; many, coarse, distinct mottles (5YR 5/6 m); moderate, medium subangular blocky; firm; gradual, smooth boundary.

BCg1 - 25 to 40 cm; dark brown (10YR 4/3 m); clay; many, coarse, distinct mottles (5YR 5/6 m); moderate, medium, subangular blocky; firm; gradual, smooth boundary.

BCg2 - 40 to 80 cm; dark grayish brown (10YR 4/2 m); clay; many, coarse, distinct mottles (5YR 5/6 m); moderate, medium, subangular blocky; firm.

Cg - 80 to 120 cm; pinkish gray; clay; faint, indistinct mottles; massive; very sticky; less than 5% coarse fragments.

ANALYSIS OF SOIL AT SITE M76-10

Horizon	Particle Size Distribution (%)										
	Sand	VCS	CS	MS	FS	VFS	Silt	Clay	Fine C	pH CaCl2	pH H2O
LFH	-	-	-	-	-	-	-	-	-	-	-
Aeg	32	-	-	-	-	-	60	8	1	4.5	5.2
Btg	16	-	-	-	-	-	38	56	24	4.8	4.9
BCg1	9	-	-	-	-	-	34	57	24	4.6	4.8
BCg2	2	-	-	-	-	-	34	64	28	4.4	4.7
Cg	8	-	-	-	-	-	35	57	-	7.2	7.4

Horizon	CaCO3 eq. (%)	Org. C (%)	Total N (%)	C/N	E.C. (mS/cm)	Sat. H2O (%)	Cations in Saturation Extract (me/l)			
							Na	K	Ca	Mg

Hori.	TEC (me/100g)	Exchange Cations (me/100g)				Base Sat. (%)	Perm. Charge CEC (me/100g)				Base Sat. (%)
		Na	K	Ca	Mg		Al	Ca	Mg	Total	
LFH	-	-	-	-	-	-					
Aeg	5.5	0.04	0.2	2.0	0.7	54	-	-	-	-	-
Btg	27.2	0.1	0.7	13.5	5.6	73	-	-	-	-	-
BCg1	29.9	0.1	0.8	15.7	7.4	81	-	-	-	-	-
BCg2	34.9	0.3	0.6	17.1	8.4	76	-	-	-	-	-
Cg	18.6	0.3	0.3	15.7	6.8	100	-	-	-	-	-

DESCRIPTION OF A PROFILE IN THE ALGAR SOIL GROUP - SITE M76-14

Soil Unit:	Sampled in RUT1 unit
Location:	SW19-89-8-W4
Classification:	Orthic Luvic Gleysol, peaty phase
Landform:	
Genetic Material:	Mixed glaciolacustrine modified by meltwater channel processes; fine-clayey
Surface Expression:	Ridged; nearly level to gentle slopes
Site Features:	Upper slope position; poorly drained; low perviousness; non-stony

Profile Description:

Om - 40 to 0 cm; moderately to highly decomposed mosses with leaves and wood fragments.

Ahe - 0 to 3 cm; black (10YR 2/1 m); silt loam; strong, medium to coarse platy; friable; clear, smooth boundary.

Btg1 - 3 to 15 cm; dark grayish brown (2.5YR 4/3 m); silt loam; many, coarse, prominent mottles (5YR 5/6 m); strong, medium to coarse subangular blocky; friable; clear, smooth boundary.

Btg2 - 15 to 35 cm; grayish brown (2.5YR 5/3 m); clay; many, coarse, prominent mottles (5YR 5/6 m); strong, medium to coarse subangular blocky; friable; clear, smooth boundary.

Cg - 35+ cm; yellowish brown (10YR 5/8 m); clay; many, coarse, prominent mottles (5YR 5/6 m); massive; sticky.

ANALYSIS OF SOIL AT SITE M76-14

Horizon	Particle Size Distribution (%)									pH CaCl2	pH H2O
	Sand	VCS	CS	MS	FS	VFS	Silt	Clay	Fine C		
Om	-	-	-	-	-	-	-	-	-	-	-
Ahe	21	-	-	-	-	-	53	26	12	6.2	6.8
Btgl	22	-	-	-	-	-	58	20	8	6.4	7.0
Btg2	21	-	-	-	-	-	31	48	7	6.4	7.0
Cg	8	-	-	-	-	-	32	60	24	6.6	7.0

Horizon	CaCO3 eq. (%)	Org. C (%)	Total N (%)	C/N	E.C. (mS/cm)	Sat. H2O (%)	Cations in Saturation Extract (me/l)			
							Na	K	Ca	Mg
Om	-	-	-	-	-	-	-	-	-	-
Ahe	-	-	-	-	-	-	-	-	-	-
Btgl	-	-	-	-	-	-	-	-	-	-
Btg2	-	-	-	-	-	-	-	-	-	-
Cg	0.2	-	-	-	-	-	-	-	-	-

Hori.	TEC (me/100g)	Exchange Cations (me/100g)				Base Sat. (%)	Perm. Charge CEC (me/100g)				Base Sat. (%)
		Na	K	Ca	Mg		Al	Ca	Mg	Total	
Om	-	-	-	-	-	-	-	-	-	-	-
Ahe	58.4	0.1	0.1	47.7	5.4	91	-	-	-	-	-
Btgl	13.0	0.05	0.1	9.4	1.5	85	-	-	-	-	-
Btg2	9.3	0.1	0.1	6.5	1.2	85	-	-	-	-	-
Cg	24.3	0.1	0.4	17.5	3.9	90	-	-	-	-	-

DESCRIPTION OF A PROFILE IN THE ALGAR SOIL GROUP - SITE M78-9

Soil Unit: Sampled in JSN1 unit

Location: NW7-91-10-W4

Classification: Gleyed Gray Luvisol

Landform:

- Genetic Material: Glaciolacustrine veneer overlying till; fine-clayey
- Surface Expression: Undulating; nearly level slopes

Site Features: Level site; imperfectly drained; low perviousness; slightly stony

Vegetation: Upland mixed coniferous forest; black spruce, white spruce, Labrador tea, blueberry

Profile Description:

LFH - 2 to 0 cm; black; moderately decomposed leaves.

Aeg - 0 to 9 cm; light gray (10YR 7/1 d), grayish brown (10YR 5/2 m); silt loam; strong, medium platy; friable; less than 5% coarse fragments.

ABg - less than 1 cm.

Btg1 - 9 to 17 cm; light gray (10YR 7/2 d), brown (10YR 5/3 m); clay loam; moderate, medium columnar breaking to strong, medium subangular blocky; very firm; less than 5% coarse fragments.

Btg2 - 17 to 37 cm; light gray (10YR 7/2 d), brown (10YR 4/3 m); clay; moderate, medium columnar breaking to strong, fine subangular blocky; very firm; less than 5% coarse fragments.

BCgj - 37 to 46 cm; grayish brown (10YR 5/2 d), brown (10YR 4/3 m); clay; weak, medium columnar; very sticky; less than 5% coarse fragments.

Cgj - 46 to 67 cm; light brownish gray (10YR 6/2 d), brown (10YR 4/3 m); clay; massive; very sticky; less than 5% coarse fragments.

IICkgj - 67 to 95 cm; light brownish gray (2.5Y 6/2 d), brown and dark brown (10YR 5/3 and 3/3 w); clay loam; lenses of pink material; massive; very sticky; 5% coarse fragments.

ANALYSIS OF SOIL AT SITE M78-9

Horizon	Particle Size Distribution (%)									pH	pH
	Sand	VCS	CS	MS	FS	VFS	Silt	Clay	Fine C	CaCl2	H2O
LFH	-	-	-	-	-	-	-	-	-	4.8	5.1
Aeg	42	1	5	18	14	4	52	6	-	4.3	5.1
Btg1	35	tr	3	11	16	5	32	33	-	4.5	5.1
Btg2	31	tr	2	9	14	5	28	41	-	4.6	5.0
BCgj	21	-	2	6	9	4	33	46	-	5.1	5.5
Cgj	18	-	1	5	9	3	28	54	-	5.7	6.1
IICkgj	34	tr	2	9	15	7	28	38	-	7.4	7.8

Horizon	CaCO3 eq. (%)	Org. C (%)	Total N (%)	C/N	E.C. (mS/cm)	Sat. H2O (%)	Cations in Saturation Extract (me/l)			
							Na	K	Ca	Mg
LFH	-	25.00	1.15	22	-	-	-	-	-	-
Aeg	-	0.65	0.05	13	-	-	-	-	-	-
Btg1	-	0.43	0.04	11	-	-	-	-	-	-
Btg2	-	0.43	0.03	14	-	-	-	-	-	-
BCgj	-	1.13	0.03	38	-	-	-	-	-	-
Cgj	-	-	-	-	-	-	-	-	-	-
IICkgj	5.2	-	-	-	-	-	-	-	-	-

Hori.	TEC (me/100g)	Exchange Cations (me/100g)				Base Sat. (%)	Perm. Charge CEC (me/100g)				Base Sat. (%)
		Na	K	Ca	Mg		Al	Ca	Mg	Total	
LFH	65.3	0.3	1.7	27.0	8.3	58					
Aeg	4.3	0.02	0.1	1.4	0.7	51					
Btg1	10.2	0.03	0.2	4.4	2.1	66					
Btg2	14.3	0.1	0.2	6.8	3.1	71					
BCgj	19.6	0.1	0.2	13.0	4.7	92					
Cgj	19.6	0.1	0.2	14.0	4.8	98					
IICkgj	10.2	-	-	-	-	-					

DESCRIPTION OF A PROFILE IN THE BITUMOUNT SOIL GROUP - SITE M76-5

Soil Unit: HRT5
Location: SE7-89-12-W4
Classification: Orthic Gleysol
Landform:
  Genetic Material: Eolian; sandy
  Surface Expression: Undulating; nearly level to gentle slopes
Site Features: Upper slope position; imperfectly drained; high perviousness; non-stony

Profile Description:

LFH - no description

Aeg - 0 to 5 cm; light brownish gray (10YR 6/2 m); loamy sand; common, medium, distinct mottles (5YR 5/8 m); very weak, fine, platy; loose; clear, smooth boundary.

Bmg - 5 to 35 cm; strong brown (7.5YR 5/6 m); sandy loam; common, medium distinct mottles (5YR 5/8 m); very weak, fine, granular; loose; gradual, smooth boundary.

BCg - 35+ cm; yellowish brown (10YR 5/6 m); loamy sand; common, medium, distinct mottles (5YR 5/8 m); very weak, fine, granular; loose.

ANALYSIS OF SOIL AT SITE M76-5

Horizon	Particle Size Distribution (%)									pH	pH
	Sand	VCS	CS	MS	FS	VFS	Silt	Clay	Fine C	CaCl2	H2O
Aeg	77	-	-	-	-	-	20	3	3	4.9	5.7
Bmg	71	-	-	-	-	-	21	8	3	5.4	6.1
BCg	85	-	-	-	-	-	9	6	4	5.8	6.7

Horizon	CaCO3 eq. (%)	Org. C (%)	Total N (%)	C/N	E.C. (mS/ cm)	Sat. H2O (%)	Cations in Saturation Extract (me/l)			
							Na	K	Ca	Mg

Hori.	TEC (me/ 100g)	Exchange Cations (me/100g)				Base Sat. (%)	Perm. Charge CEC (me/100g)				Base Sat. (%)
		Na	K	Ca	Mg		Al	Ca	Mg	Total	
Aeg	6.2	0.02	0.1	2.8	0.7	58	-	-	-	-	-
Bmg	5.6	0.04	0.1	3.0	1.4	81	-	-	-	-	-
BCg	6.7	0.04	0.1	4.1	1.7	89	-	-	-	-	-

DESCRIPTION OF A PROFILE IN THE BITUMOUNT SOIL GROUP - SITE M76-18

Soil Unit: Sampled in RUT1 unit

Location: NE2-90-9-W4

Classification: Rego Gleysol

Landform:

- Genetic Material: Glaciofluvial meltwater channel sands
- Surface Expression: Ridged; very gentle slopes

Site Features: Lower slope position; poorly drained; high perviousness; non-stony

Profile Description:

LFH - 10 to 0 cm; moderately to highly decomposed mosses, leaves and wood fragments.

Cg1 - 0 to 20 cm; brown (10YR 5/3 m); loamy sand; many, medium, distinct mottles (5YR 5/6 m); single grain; loose; diffuse, wavy boundary.

Cg2 - 20 to 45 cm; dark grayish brown (10YR 4/2 m); sandy loam; many, medium, distinct mottles (5YR 5/6 m); massive; friable; diffuse, wavy boundary.

Cg3 - 45+ cm; dark yellowish brown (10YR 4/4 m); sandy loam; many medium, distinct mottles (5YR 5/6 m); single grain, loose.

ANALYSIS OF SOIL AT SITE M76-18

Horizon	Particle Size Distribution (%)									pH	pH
	Sand	VCS	CS	MS	FS	VFS	Silt	Clay	Fine C	CaCl2	H2O
LFH	-	-	-	-	-	-	-	-	-	-	-
Cg1	87	-	-	-	-	-	6	7	2	5.7	7.2
Cg2	57	-	-	-	-	-	27	16	5	6.3	7.2
Cg3	79	-	-	-	-	-	6	15	8	6.3	7.1

Horizon	CaCO3 eq. (%)	Org. C (%)	Total N (%)	C/N	E.C. (mS/cm)	Sat. H2O (%)	Cations in Saturation Extract (me/l)			
							Na	K	Ca	Mg

Hori.	TEC (me/100g)	Exchange Cations (me/100g)				Base Sat. (%)	Perm. Charge CEC (me/100g)				Base Sat. (%)
		Na	K	Ca	Mg		Al	Ca	Mg	Total	
LFH	-	-	-	-	-	-	-	-	-	-	-
Cg1	2.5	0.01	0.03	1.5	0.3	74	-	-	-	-	-
Cg2	6.7	0.03	0.1	4.2	1.4	86	-	-	-	-	-
Cg3	7.3	0.06	0.1	4.3	1.6	83	-	-	-	-	-

DESCRIPTION OF A PROFILE IN THE BITUMOUNT SOIL GROUP - SITE M79-6

Soil Unit: BMT1

Location: NW14-97-8-W4

Classification: Orthic Gleysol, peaty phase

Landform:

Genetic Material: Glaciofluvial; sandy

Surface Expression: Undulating; gentle slopes

Site Features: Sample site in depression; west aspect; poorly drained; high perviousness; soil frozen at 50 cm in mid July

Vegetation: Wetland black spruce bog forest; black spruce, Labrador tea, feathermosses, grasses

Profile Description:

Of - 20 to 14 cm; dark brown (10YR 3/2, 4/2 and 4/3 m); slightly decomposed forest peat; clear, smooth boundary.

Om - 14 to 0 cm; black (10YR 2/1 m); moderately decomposed forest peat; clear, wavy and irregular boundary.

Aheg - 0 to 3 cm; dark grayish brown (10YR 3.5/2 w); sand; single grain; non-sticky; irregular thickness, almost absent in places; clear, irregular boundary.

Bmg - 3 to 36 cm; yellowish brown (10YR 5/4 w); sand; single grain; non-sticky; gradual, smooth boundary.

BC - 36 to 50+ cm; yellowish brown (10YR 5/4 w); sand; single grain; non-sticky.

ANALYSIS OF SOIL AT SITE M79-6

Horizon	Particle Size Distribution (%)									pH	pH
	Sand	VCS	CS	MS	FS	VFS	Silt	Clay	Fine C	CaCl2	H2O
Of	-	-	-	-	-	-	-	-	-	4.3	4.8
Om	-	-	-	-	-	-	-	-	-	6.3	6.8
Aeg	88	0.6	33	45	7	3	10	2	-	6.6	7.1
Bmg	80	1	27	39	8	5	17	3	-	7.1	7.6
BCg	90	2	41	38	7	2	6	4	-	6.6	7.4

Horizon	CaCO3 eq. (%)	Org. C (%)	Total N (%)	C/N	E.C. (mS/cm)	Sat. H2O (%)	Cations in Saturation Extract (me/l)			
							Na	K	Ca	Mg
Of	-	45.82	1.08	42	-	-	-	-	-	-
Om	-	36.95	1.19	31	-	-	-	-	-	-
Aeg	-	0.86	0.18	5	-	-	-	-	-	-
Bmg	-	0.20	0.08	3	-	-	-	-	-	-
BCg	-	-	-	-	-	-	-	-	-	-

Hori.	TEC (me/100g)	Exchange Cations (me/100g)				Base Sat. (%)	Perm. Charge CEC (me/100g)				Base Sat. (%)
		Na	K	Ca	Mg		Al	Ca	Mg	Total	
Of	113.9	0.2	2.6	46.0	9.7	52	-	-	-	-	-
Om	174.6	0.5	1.5	134.8	16.1	88	-	-	-	-	-
Aeg	6.8	0.0	0.03	6.3	0.7	100	-	-	-	-	-
Bmg	3.1	-	-	-	-	-	-	-	-	-	-
BCg	3.0	-	-	-	-	-	-	-	-	-	-

DESCRIPTION OF A PROFILE IN THE BUCKTON SOIL GROUP - SITE M77-20

Soil Unit: BKN1

Location: SE 13-100-12-W4

Classification: Orthic Gray Luvisol

Landform:

  Genetic Material: Colluviated ground moraine and bedrock shales; fine-loamy

  Surface Expression: Inclined and hummocky; moderate slopes

Site Features: Mid slope position; south-east aspect; well-drained; medium perviousness; moderately stony

Vegetation: Upland aspen forest; aspen, balsam fir, rose, grasses

Profile Description:

LFH - 5 to 0 cm; slightly to moderately decomposed leaves; clear, wavy boundary.

Ae - 0 to 15 cm; pale brown (10YR 6/3 d; 10YR 3/3 m) silt loam; strong, medium platy; friable; 10 to 20% coarse fragments; clear, wavy boundary.

Bt - 15 to 63 cm; brown (10YR 5/3 d; 10YR 4/3.5 m); clay loam; moderate, medium subangular blocky; friable; 10 to 20% coarse fragments; gradual, smooth boundary.

BC - 63 to 75 cm; yellowish brown (10YR 5/4 d; 10YR 3.5/4 m); clay; moderate, medium granular to massive; friable; abundant shale particles; less than 10% coarse fragments; diffuse, smooth boundary.

C - 75+ cm; brown (10YR 5/3 d; 10YR 3/3 m); clay loam; massive; friable; 10 to 20% coarse fragments.

ANALYSIS OF SOIL AT SITE M77-20

Horizon	Particle Size Distribution (%)									pH $CaCl_2$	pH H_2O
	Sand	VCS	CS	MS	FS	VFS	Silt	Clay	Fine C		
LFH	-	-	-	-	-	-	-	-	-	4.0	5.5
Ae	37	tr	2	10	16	9	50	13	3	4.5	5.1
Bt	29	tr	2	11	13	3	33	38	19	4.0	4.7
BC	13	tr	1	2	8	2	32	55	24	3.9	4.2
C	41	1	4	17	15	4	24	35	13	3.9	4.2

Horizon	$CaCO_3$ eq. (%)	Org. C (%)	Total N (%)	C/N	E.C. (mS/cm)	Sat. H_2O (%)	Cations in Saturation Extract (me/l)			
							Na	K	Ca	Mg
LFH	-	39.57	1.87	21	-	-	-	-	-	-
Ae	-	0.83	0.07	12	-	-	-	-	-	-
Bt	-	0.73	0.06	12	-	-	-	-	-	-
BC	-	-	-	-	-	-	-	-	-	-
C	-	-	-	-	-	-	-	-	-	-

Hori.	TEC (me/100g)	Exchange Cations (me/100g)				Base Sat. (%)	Perm. Charge CEC (me/100g)				Base Sat. (%)
		Na	K	Ca	Mg		Al	Ca	Mg	Total	
LFH	57.6	0.7	1.8	38.6	6.9	84	-	-	-	-	-
Ae	8.4	0.1	0.3	3.5	1.8	67	-	-	-	-	-
Bt	22.6	0.1	0.5	5.1	4.2	44	-	-	-	-	-
BC	32.2	0.4	1.0	7.3	6.7	48	-	-	-	-	-
C	18.3	0.4	0.6	4.6	4.2	54	-	-	-	-	-

DESCRIPTION OF A SOIL PROFILE IN THE CHIPEWYAN SOIL GROUP - SITE M78-25

Soil Unit: CPN1

Location: NE8-109-9-W4

Classification: Gleyed Cumulic Regosol (Chipewyan Series)

Landform:

  Genetic Material: Fluvial delta; fine-silty

  Surface Expression: Level and nearly level

Site Features: Nearly level; imperfectly drained; medium perviousness; non-stony

Vegetation: Bottomland and riparian forest; balsam poplar, white spruce, horsetail

Profile Description:

LF - 2 to 0 cm; dark brown; slightly to moderately decomposed needles and leaves; many fungal hyphae.

C - 0 to 30 cm; very dark gray (2.5Y 3/0 m); silty clay loam; weak, fine platy; laminated; friable; includes some thin LFb and Hb horizons.

Ckgj - 30 to 50 cm; pale olive (5Y 6/3 m); silty clay loam; weak, fine platy; laminated; friable; includes some thin LFb and Hb horizons.

Ckg - 50 to 100 cm; very dark grayish brown (2.5Y 3/2 m); silty clay loam; massive; laminated; friable; includes some thin LFb and Hb horizons.

ANALYSIS OF SOIL AT SITE M78-25

Horizon	Particle Size Distribution (%)									pH	pH
	Sand	VCS	CS	MS	FS	VFS	Silt	Clay	Fine C	CaCl2	H2O
LF	-	-	-	-	-	-	-	-	-	6.8	7.3
Ck	0	-	-	-	-	-	64	36	-	6.9	7.5
Ckgj	0	-	-	-	-	-	62	38	-	7.4	7.8
Ckg	1	-	-	-	-	-	67	32	-	7.4	7.8

Horizon	CaCO3 eq. (%)	Org. C (%)	Total N (%)	C/N	E.C. (mS/cm)	Sat. H2O (%)	Cations in Saturation Extract (me/l)			
							Na	K	Ca	Mg
LF	-	35.41	1.36	26	-	-	-	-	-	-
Ck	-	9.56	0.52	18	-	-	-	-	-	-
Ckgj	5.2	3.97	0.24	16	-	-	-	-	-	-
Ckg	5.4	3.41	0.23	15	-	-	-	-	-	-

Hori.	TEC (me/100g)	Exchange Cations (me/100g)				Base Sat. (%)	Perm. Charge CEC (me/100g)				Base Sat. (%)
		Na	K	Ca	Mg		Al	Ca	Mg	Total	
LF	80.2	0.2	6.2	70.9	23.7	100	-	-	-	-	-
Ck	49.9	-	-	-	-	-	-	-	-	-	-
Ckgj	30.8	-	-	-	-	-	-	-	-	-	-
Ckg	30.8	-	-	-	-	-	-	-	-	-	-

DESCRIPTION OF A PROFILE IN THE CHIPEWYAN SOIL GROUP - SITE M78-26

Soil Unit:	CPN1
Location:	NW24-108-8-W4
Classification:	Gleyed Regosol
Landform:	
Genetic Material:	Fluvial delta; sandy
Surface Expression:	Nearly level or ridged (levees), with very gentle slopes
Site Features:	Upper slope position; northwest aspect; moderately well to imperfectly drained; high perviousness; non-stony
Vegetation:	At site: Upland aspen forest; aspen, wild rose, horsetail Downslope: Bottomland and riparian deciduous shrub; willow, aspen, grasses

Profile Description:

LF - 10 to 0 cm; dark brown to black; slightly to moderately decomposed leaves; plentiful, fine to coarse, horizontal roots; coarse roots concentrated at LF-Cgj1 boundary; abrupt, smooth boundary.

Cgj1 - 0 to 20 cm; very pale brown (10YR 7/3 d), pale brown (10YR 5.5/3 m); few, medium, distinct, strong brown (7.5YR 5/8 m) mottles; fine sand; single grain; very friable; few, fine to coarse, oblique roots; diffuse, smooth boundary.

Cgj2 - 20 to 50 cm; very pale brown (10YR 7/3 d), pale brown (10YR 5.5/3 m); few, medium, faint to distinct, strong brown (7.5YR 5/8 m) mottles; fine sand; single grain; very friable; very few roots; diffuse, smooth boundary.

Cgj3 - 50+ cm; very pale brown (10YR 7/3 d), pale brown (10YR 6/3 m); few, medium, faint mottles; fine sand; single grain; very friable, very few roots.

ANALYSIS OF SOIL AT SITE M78-26

Horizon	Particle Size Distribution (%)									pH	pH
	Sand	VCS	CS	MS	FS	VFS	Silt	Clay	Fine C	CaCl2	H2O
LF	-	-	-	-	-	-	-	-	-	5.3	5.7
Cgj1	97	-	-	5	77	15	3	-	-	4.4	5.2
Cgj2	98	-	-	2	91	5	2	-	-	4.6	5.6
Cgj3	99	-	-	13	84	2	1	-	-	4.7	5.4

Horizon	CaCO3 eq. (%)	Org. C (%)	Total N (%)	C/N	E.C. (mS/cm)	Sat. H2O (%)	Cations in Saturation Extract (me/l)			
							Na	K	Ca	Mg
LF	-	22.80	1.30	18	-	-	-	-	-	-
Cgj1	-	0.11	0.01	11	-	-	-	-	-	-
Cgj2	-	0.07	0.00	-	-	-	-	-	-	-
Cgj3	-	0.04	0.00	-	-	-	-	-	-	-

Hori.	TEC (me/100g)	Exchange Cations (me/100g)				Base Sat. (%)	Perm. Charge CEC (me/100g)				Base Sat. (%)
		Na	K	Ca	Mg		Al	Ca	Mg	Total	
LF	115.8	0.3	2.8	62.2	14.1	69	1.1	62.5	16.5	80.1	99
Cgj1	0.9	0.02	0.01	0.3	0.08	46	0.1	0.4	0.2	0.7	86
Cgj2	0.5	0.00	0.01	0.2	0.05	52	0.04	0.5	0.2	0.7	95
Cgj3	0.5	0.01	0.01	0.2	0.08	60	0.01	0.4	0.1	0.5	98

DESCRIPTION OF A PROFILE IN THE CHIPEWYAN SOIL GROUP - SITE M78-27

Soil Unit: CPN1

Location: NE16-109-8-W4

Classification: Gleyed Humic Regosol

Landform:

Genetic Material: Fluvial delta; fine-clayey overlying sandy

Surface Expression: Level and nearly level

Site Features: Nearly level site; imperfectly drained; medium to high perviousness; non-stony

Vegetation: Bottomland and riparian forest; balsam poplar, white spruce, wild rose, dogwood, horsetail

Profile Description:

LF - 10 to 0 cm; very dark brown; slightly to moderately decomposed leaves and needles; abrupt, wavy boundary.

Ahj - 0 to 20 cm; very dark gray (10YR 3/1 m); silty clay; fine granular; friable; gradual, wavy boundary.

ACk - 20 to 42 cm; very dark grayish brown (10YR 3/2 m); silty clay; fine granular; friable; gradual, wavy boundary.

IICk - 42 to 60 cm; light olive brown (2.5Y 5/4 m); very fine sandy loam; laminated; amorphous; loose; diffuse, smooth boundary.

IICkg - 60 to 100 cm; light olive brown (2.5Y 5/4 m); fine sand; laminated; single grain; loose.

ANALYSIS OF SOIL AT SITE M78-27

Horizon	Particle Size Distribution (%) Sand	VCS	CS	MS	FS	VFS	Silt	Clay	Fine C	pH CaCl2	pH H2O
LF	-	-	-	-	-	-	-	-	-	6.6	7.1
Ahj	0	-	-	-	-	-	48	52	-	6.5	7.1
ACk	10	-	-	-	-	-	48	42	-	7.6	8.1
IICk	77	-	-	-	42	34	15	8	-	7.7	8.0
IICkg	-	-	-	-	-	-	-	-	-	7.6	8.1

Horizon	CaCO3 eq. (%)	Org. C (%)	Total N (%)	C/N	E.C. (mS/cm)	Sat. H2O (%)	Cations in Saturation Extract (me/l) Na	K	Ca	Mg
LF	-	24.63	1.21	20	-	-	-	-	-	-
Ahj	-	15.56	0.75	21	-	-	-	-	-	-
ACk	2.7	4.87	0.36	14	-	-	-	-	-	-
IICk	3.4	0.42	0.02	21	-	-	-	-	-	-
IICkg	3.4	0.43	0.03	14	-	-	-	-	-	-

Hori.	TEC (me/100g)	Exchange Cations (me/100g) Na	K	Ca	Mg	Base Sat. (%)	Perm. Charge CEC (me/100g) Al	Ca	Mg	Total	Base Sat. (%)
LF	87.0	3	2.4	74.1	23.2	100	-	-	-	-	-
Ahj	73.5	1.1	0.7	59.0	17.4	100	-	-	-	-	-
ACk	40.8	-	-	-	-	-	-	-	-	-	-
IICk	6.4	-	-	-	-	-	-	-	-	-	-
IICkg	7.5	-	-	-	-	-	-	-	-	-	-

DESCRIPTION OF A PROFILE IN THE CHIPEWYAN SOIL GROUP - SITE M78-29

Soil Unit:	CPN1
Location:	NE15-109-7-W4
Classification:	Gleyed Regosol
Landform:	
Genetic Material:	Fluvial delta; fine-silty over coarse-loamy
Surface Expression:	Level
Site Features:	Nearly level site; imperfectly drained; medium perviousness; non-stony
Vegetation:	Bottomland and riparian forest; balsam poplar, river alder, horsetail, grasses

Profile Description:

L - 18 to 13 cm; dark brown to black; slightly to moderately decomposed leaves; abundant, very fine to medium, horizontal and oblique roots; gradual, smooth boundary.

FH - 13 to 0 cm; black; moderately to well decomposed; abundant, very fine to coarse, horizontal and oblique roots; abrupt, smooth boundary.

Ahegi - 0 to 1 cm; very dark grayish brown (10YR 3/2 m); silty clay loam; fine granular; friable; abundant, very fine to coarse roots; clear, wavy boundary; discontinuous.

ACkgj - 1 to 9 cm; dark grayish brown (10YR 3.5/2 m); silt loam; fine granular; friable; abundant, very fine to coarse, oblique roots; common, faint, yellowish mottles; gradual, smooth boundary.

Ckgj - 9 to 39 cm; dark grayish brown (10YR 4/2 m); loam; amorphous; very friable; abundant, very fine to medium, oblique roots; common, faint, yellowish mottles; diffuse, smooth boundary.

Ckg - 39 to 100 cm; dark grayish brown (2.5Y 4/2 m); loam; laminated; amorphous; very friable; abundant, very fine and fine, oblique roots; few roots in lower part of horizon; very faintly mottled.

ANALYSIS OF SOIL AT SITE M78-29

Horizon	Particle Size Distribution (%) Sand	VCS	CS	MS	FS	VFS	Silt	Clay	Fine C	pH CaCl2	pH H2O
L	-	-	-	-	-	-	-	-	-	6.6	7.1
FH	-	-	-	-	-	-	-	-	-	5.9	6.2
Ahegj	7	-	-	-	-	-	62	31	-	6.6	6.9
ACkgj	15	-	-	-	2	13	62	23	-	7.2	7.4
Ckgj	39	-	-	-	8	31	46	15	-	7.6	7.9
Ckg	39	-	-	-	7	32	46	15	-	7.7	8.0

Horizon	CaCO3 eq. (%)	Org. C (%)	Total N (%)	C/N	E.C. (mS/cm)	Sat. H2O (%)	Cations in Saturation Extract (me/l) Na	K	Ca	Mg
L	-	26.94	1.48	18	-	-	-	-	-	-
FH	-	35.06	2.24	16	-	-	-	-	-	-
Ahegj	-	5.24	0.39	13	-	-	-	-	-	-
ACkgj	4.9	2.81	0.20	11	-	-	-	-	-	-
Ckgj	5.3	1.73	0.07	16	-	-	-	-	-	-
Ckg	5.9	1.40	0.09	8	-	-	-	-	-	-

Hori.	TEC (me/100g)	Exchange Cations (me/100g) Na	K	Ca	Mg	Base Sat. (%)	Perm. Charge CEC (me/100g) Al	Ca	Mg	Total	Base Sat. (%)
L	90.9	1.1	2.9	74.8	23.2	100	-	-	-	-	-
FH	130.1	0.9	1.2	95.5	24.9	95	-	-	-	-	-
Ahegj	41.7	2.3	0.5	36.6	14.1	100	-	-	-	-	-
ACkgj	24.5	1.4	0.2	34.7	9.9	100	-	-	-	-	-
Ckgj	13.5	-	-	-	-	-	-	-	-	-	-
Ckg	10.5	-	-	-	-	-	-	-	-	-	-

DESCRIPTION OF A PROFILE IN THE CHIPEWYAN SOIL GROUP - SITE M78-30

Soil Unit: CPN1

Location: NW8-107-9-W4

Classification: Cumulic Regosol

Landform:

- Genetic Material: Fluvial delta; fine-loamy
- Surface Expression: Nearly level to level

Site Features: Nearly level site; moderately well drained; medium perviousness; non-stony

Vegetation: Bottomland and riparian forest; balsam poplar, white spruce, river alder, dogwood

Profile Description:

LF - 4 to 0 cm; black; slightly to moderately decomposed leaves and needles; contains some loamy mineral materials; abundant very fine to medium, horizontal roots; gradual, wavy boundary.

ACk - 0 to 18 cm; dark grayish brown (2.5Y 4/2 m); silty clay loam; laminated; fine granular; friable; plentiful, very fine to coarse, horizontal and oblique roots; clear, wavy boundary; contains many thin LFb layers.

Ck1 - 18 to 28 cm; grayish brown (2.5Y 5/2 m); silty clay loam; laminated; fine granular and weak fine platy; friable; plentiful, fine to coarse, oblique roots; contains some thin LFb layers; clear, wavy boundary.

Ck2 - 28 to 62 cm; grayish brown (2.5Y 5/2 m); loam; laminated; amorphous; friable; few, fine to coarse, oblique roots; contains a few thin LFb layers; gradual, smooth boundary.

Ck3 - 62 to 100 cm; light brownish gray (2.5Y 6/2 m); loam; laminated; amorphous; friable; few, fine and medium, oblique roots; contains a few LFb layers; weakly calcareous.

ANALYSIS OF SOIL AT SITE M78-30

Horizon	Particle Size Distribution (%)									pH	pH
	Sand	VCS	CS	MS	FS	VFS	Silt	Clay	Fine C	CaCl2	H2O
LF	-	-	-	-	-	-	-	-	-	6.7	6.9
ACk	5	-	-	-	-	-	64	31	-	7.1	7.5
Ck1	15	-	-	tr	6	9	58	27	-	7.1	7.5
Ck2	31	-	-	-	13	18	49	20	-	7.2	7.7
Ck3	29	-	-	-	11	18	49	22	-	7.3	7.8

Horizon	CaCO3 eq. (%)	Org. C (%)	Total N (%)	C/N	E.C. (mS/cm)	Sat. H2O (%)	Cations in Saturation Extract (me/l)			
							Na	K	Ca	Mg
LF	-	30.26	2.27	14	-	-	-	-	-	-
ACk	4.3	7.92	0.60	12	-	-	-	-	-	-
Ck1	4.1	4.64	0.32	13	-	-	-	-	-	-
Ck2	4.6	2.69	0.17	13	-	-	-	-	-	-
Ck3	4.0	3.09	0.21	12	-	-	-	-	-	-

Hori.	TEC (me/100g)	Exchange Cations (me/100g)				Base Sat. (%)	Perm. Charge CEC (me/100g)				Base Sat. (%)
		Na	K	Ca	Mg		Al	Ca	Mg	Total	
LF	83.1	-	-	-	-	-	-	-	-	-	-
ACk	40.8	-	-	-	-	-	-	-	-	-	-
Ck1	28.5	-	-	-	-	-	-	-	-	-	-
Ck2	18.8	-	-	-	-	-	-	-	-	-	-
Ck3	21.4	-	-	-	-	-	-	-	-	-	-

DESCRIPTION OF A PROFILE IN THE DOVER SOIL GROUP - SITE M76-4

Soil Unit: Sampled in ALG1 unit

Location: SW15-89-10-W4

Classification: Orthic Gray Luvisol

Landform:

- Genetic Material: Glaciolacustrine; fine-clayey
- Surface Expression: Undulating; nearly level slopes

Site Features: Nearly level site; moderately well drained; low perviousness; non-stony

Profile Description:

LFH - ---; mainly leaves and wood fragments.

Ae - 0 to 12 cm; silt loam; strong, fine, platy; friable; abrupt, smooth boundary.

Bt1 - 12 to 26 cm; clay; strong, coarse, subangular blocky; very firm; gradual, wavy boundary.

Bt2 - 26 to 40 cm; clay; strong, coarse, subangular blocky; very firm; gradual, wavy boundary.

C - 40+ cm; clay; massive; very firm.

ANALYSIS OF SOIL AT SITE M76-4

Horizon	Particle Size Distribution (%)									pH	pH
	Sand	VCS	CS	MS	FS	VFS	Silt	Clay	Fine C	CaCl2	H2O
LFH	-	-	-	-	-	-	-	-	-	-	-
Ae	23	-	-	-	-	-	66	11	-	4.4	5.2
Bt1	15	-	-	-	-	-	39	46	19	4.4	4.6
Bt2	13	-	-	-	-	-	31	56	25	4.8	5.1
C	11	-	-	-	-	-	30	59	28	5.3	5.6

Horizon	CaCO3 eq. (%)	Org. C (%)	Total N (%)	C/N	E.C. (mS/ cm)	Sat. H2O (%)	Cations in Saturation Extract (me/l)			
							Na	K	Ca	Mg

Hori.	TEC (me/ 100g)	Exchange Cations (me/100g)				Base Sat. (%)	Perm. Charge CEC (me/100g)				Base Sat. (%)
		Na	K	Ca	Mg		Al	Ca	Mg	Total	
LFH	-	-	-	-	-	-	-	-	-	-	-
Ae	8.2	0.03	0.2	1.6	1.8	45	-	-	-	-	-
Bt1	23.2	0.1	0.3	2.8	10.5	59	-	-	-	-	-
Bt2	28.5	0.3	0.4	4.7	17.7	81	-	-	-	-	-
C	27.6	0.6	0.5	4.8	18.7	90	-	-	-	-	-

DESCRIPTION OF A PROFILE IN THE DOVER SOIL GROUP - SITE M76-8

Soil Unit: DOV1
Location: SE26-89-10-W4
Classification: Orthic Gray Luvisol
Landform:
  Genetic Material: Glaciolacustrine; fine-clayey
  Surface Expression: Undulating; nearly level and very gentle slopes
Site Features: Upper slope position; well-drained; low perviousness; non-stony

Profile Description:

LFH - 5 to 0 cm; leaves and wood fragments; moderately decomposed.
Ae1 - 0 to 6 cm; light gray (10YR 7/1 m); silt loam, strong, fine, platy; firm; clear, smooth boundary.
Ae2 - 6 to 18 cm; pale brown (10YR 6/3 m); sandy clay loam; strong, coarse, subangular blocky; firm; clear, smooth boundary.
Bt - 18 to 45 cm; dark yellowish brown (10YR 4/4 m); clay; strong, coarse, subangular blocky; firm; gradual, wavy boundary.
BC - 45+ cm; dark yellowish brown (10YR 3/4 m); clay loam; strong, coarse, subangular blocky; firm.

ANALYSIS OF SOIL AT SITE M76-8

Horizon	Particle Size Distribution (%)									pH	pH
	Sand	VCS	CS	MS	FS	VFS	Silt	Clay	Fine C	$CaCl_2$	H_2O
LFH	-	-	-	-	-	-	-	-	-	-	-
Ae1	23	-	-	-	-	-	53	24	6	4.4	4.8
Ae2	-	-	-	-	-	-	-	-	-	-	-
Bt	15	-	-	-	-	-	35	50	16	4.5	4.8
BC	28	-	-	-	-	-	33	39	14	4.6	4.9

Horizon	$CaCO_3$ eq. (%)	Org. C (%)	Total N (%)	C/N	E.C. (mS/ cm)	Sat. H_2O (%)	Cations in Saturation Extract (me/l)			
							Na	K	Ca	Mg

Hori.	TEC (me/ 100g)	Exchange Cations (me/100g)				Base Sat. (%)	Perm. Charge CEC (me/100g)				Base Sat. (%)
		Na	K	Ca	Mg		Al	Ca	Mg	Total	
LFH	-	-	-	-	-	-	-	-	-	-	-
Ae1	9.3	0.1	0.2	3.7	2.2	67	-	-	-	-	-
Ae2	-	-	-	-	-	-	-	-	-	-	-
Bt	17.2	0.1	0.2	6.7	5.1	71	-	-	-	-	-
BC	16.1	0.1	0.2	6.3	4.9	72	-	-	-	-	-

DESCRIPTION OF A PROFILE IN THE DOVER SOIL GROUP - SITE M76-9

Soil Unit:	DOV1
Location:	NW26-89-10-W4
Classification:	Orthic Gray Luvisol
Landform:	
Genetic Material:	Glaciolacustrine; fine-clayey
Surface Expression:	Undulating; nearly level to very gentle slopes
Site Features:	Nearly level sample site; moderately well drained; low perviousness; non-stony

Profile Description:

LFH - 5 to 0 cm.

Ae - 0 to 10 cm; grayish brown (10YR 5/2 m); silt loam; strong, coarse, platy; friable; clear, smooth boundary.

Bt - 10 to 30 cm; dark grayish brown (10YR 4/2 m); silty clay loam; strong, coarse, subangular blocky; firm; gradual, smooth boundary.

BC - 30+ cm; dark brown (10YR 4/3 m); clay; moderate, medium granular; firm.

ANALYSIS OF SOIL AT SITE M76-9

Horizon	Particle Size Distribution (%)									pH CaCl2	pH H2O
	Sand	VCS	CS	MS	FS	VFS	Silt	Clay	Fine C		
LFH	-	-	-	-	-	-	-	-	-	-	-
Ae	18	-	-	-	-	-	63	19	3	5.1	5.9
Bt	16	-	-	-	-	-	51	33	10	5.4	5.9
BC	16	-	-	-	-	-	38	46	22	6.3	6.6

Horizon	CaCO3 eq. (%)	Org. C (%)	Total N (%)	C/N	E.C. (mS/cm)	Sat. H2O (%)	Cations in Saturation Extract (me/l)			
							Na	K	Ca	Mg

Hori.	TEC (me/100g)	Exchange Cations (me/100g)				Base Sat. (%)	Perm. Charge CEC (me/100g)				Base Sat. (%)
		Na	K	Ca	Mg		Al	Ca	Mg	Total	
LFH	-	-	-	-	-	-	-	-	-	-	-
Ae	8.1	0.1	0.2	3.1	2.4	72	-	-	-	-	-
Bt	16.1	0.2	0.2	6.8	5.6	86	-	-	-	-	-
BC	24.3	0.4	0.3	12.1	9.5	92	-	-	-	-	-

DESCRIPTION OF A PROFILE IN THE DOVER SOIL GROUP - SITE M76-17

Soil Unit:	Minor inclusion in KNS1
Location:	SE3-90-8-W4
Classification:	Orthic Gray Luvisol
Landform:	
Genetic Material:	Morainal, with thin mixed glaciolacustrine veneer; fine-loamy to clayey
Surface Expression:	Undulating; very gentle slopes
Site Features:	Crest position; moderately well to well-drained; low perviousness; non-stony

Profile Description:

LFH	- 4 to 0 cm; moderately decomposed leaves and needles with some wood fragments.
Ae	- 0 to 5 cm; light gray (10YR 7/1 m); loam; moderate to strong medium platy; friable; clear, wavy boundary.
Bt1	- 5 to 10 cm; (7.5YR 4/4 m); heavy clay; strong, coarse subangular blocky; very firm; gradual, wavy boundary.
Bt2	- 10 to 25 cm; (7.5YR 4/4 m); heavy clay; strong, coarse subangular blocky; very firm; gradual, wavy boundary.
Bt3	- 25 to 50 cm; dark brown (7.5YR 3/3 m); heavy clay; strong, very coarse subangular blocky; very firm; gradual, wavy boundary.
IIC	- 50+ cm; dark yellowsh brown (10YR 4/4 m); clay loam; massive; firm.

ANALYSIS OF SOIL AT SITE M76-17

Horizon	Particle Size Distribution (%)									pH	pH
	Sand	VCS	CS	MS	FS	VFS	Silt	Clay	Fine C	CaCl2	H2O
LFH	-	-	-	-	-	-	-	-	-	-	-
Ae	42	-	-	-	-	-	47	11	8	6.2	7.1
Bt1	12	-	-	-	-	-	39	49	18	4.4	4.8
Bt2	6	-	-	-	-	-	31	63	24	4.2	4.6
Bt3	2	-	-	-	-	-	24	74	36	4.2	4.3
C	43	-	-	-	-	-	25	32	18	5.5	6.3

Horizon	CaCO3 eq. (%)	Org. C (%)	Total N (%)	C/N	E.C. (mS/cm)	Sat. H2O (%)	Cations in Saturation Extract (me/l)			
							Na	K	Ca	Mg
LFH	-	-	-	-	-	-	-	-	-	-
Ae	-	-	-	-	-	-	-	-	-	-
Bt1	-	-	-	-	-	-	-	-	-	-
Bt2	-	-	-	-	-	-	-	-	-	-
Bt3	-	-	-	-	-	-	-	-	-	-
C	-	-	-	-	-	-	-	-	-	-

Hori.	TEC (me/100g)	Exchange Cations (me/100g)				Base Sat. (%)	Perm. Charge CEC (me/100g)				Base Sat. (%)
		Na	K	Ca	Mg		Al	Ca	Mg	Total	
LFH	-	-	-	-	-	-	-	-	-	-	-
Ae	6.1	0.02	0.1	4.2	0.8	84	-	-	-	-	-
Bt1	24.3	0.03	0.2	7.6	3.3	46	-	-	-	-	-
Bt2	38.4	0.1	0.4	9.6	4.9	39	-	-	-	-	-
Bt3	31.1	0.4	0.6	14.4	6.9	72	-	-	-	-	-
C	19.1	0.2	0.2	11.3	5.4	90	-	-	-	-	-

DESCRIPTION OF A PROFILE IN THE DOVER SOIL GROUP - SITE M77-7

Soil Unit: Sampled in JSN1 unit

Location: NW21-95-12-W4

Classification: Orthic Gray Luvisol

Landform:

  Genetic Material: Glaciolacustrine veneer overlying morainal material; fine-clayey

  Surface Expression: Undulating veneer; very gentle slopes

Site Features: Upper slope position; west aspect; moderately well drained; medium perviousness; slightly stony

Vegetation: Upland undifferentiated community type; aspen, balsam poplar, willow, rose

Profile Description:

LFH - 4 to 0 cm; dark gray (20YR 4/2 d; 10YR 2/1 m); slightly decomposed leaves in L layer; leaves permeated by fungal hyphae in F layer; plentiful, very fine to medium, random roots; clear, wavy boundary.

Ae - 0 to 4 cm; grayish brown (10YR 5/2 d; 10YR 3/3 m); silt loam; moderate, medium platy; friable; plentiful very fine and fine, few medium and coarse, random roots; less than 10% coarse fragments; gradual, irregular boundary.

AB - 4 to 8 cm; pale brown (10YR 6/3 d; 10YR 3/3 m); silt loam; weak, medium platy and weak, fine, subangular blocky; firm; few, very fine to medium, oblique roots; less than 10% coarse fragments; smooth boundary.

Bt - 8 to 29 cm; pale brown (10YR 6/3 d; 10YR 4/3 m); clay; moderate, medium, subangular blocky; firm; few, very fine to medium, oblique roots; less than 10% coarse fragments; gradual, smooth boundary.

BC - 29 to 48 cm; grayish brown (10YR 5/2 d; 10YR 3/3 m); clay; moderate, fine and medium, subangular blocky; firm; very few, very fine to medium, vertical roots; less than 10% coarse fragments; clear, smooth boundary.

IIBCk - 48 to 86 cm; brown (10YR 5/3 d; 10YR 3/3 m); clay; moderate, medium, subangular blocky; firm; very few, very fine to medium, vertical roots; 10 to 15% gravelly and stony fragments; gradual, smooth boundary.

IICk - 86 to 110 cm; grayish brown (10YR 5.5/2 d; 10YR 3/3 m); clay; massive; firm; very few roots; 10 to 15% gravelly and stony fragments.

ANALYSIS OF SOIL AT SITE M77-7

Horizon	Particle Size Distribution (%)									pH CaCl2	pH H2O
	Sand	VCS	CS	MS	FS	VFS	Silt	Clay	Fine C		
LFH	-	-	-	-	-	-	-	-	-	6.2	5.8
Ae	22	tr	1	4	10	7	35	43	17	7.9	8.1
AB	20	tr	1	4	8	7	57	23	17	6.3	7.0
Bt	21	tr	1	5	9	6	32	47	20	4.7	5.5
BC	22	tr	2	5	10	5	29	49	23	4.8	5.2
IIBCk	27	tr	2	6	13	6	32	41	20	6.8	6.9
IICk	23	tr	2	6	10	5	35	42	16	7.3	7.5

Horizon	CaCO3 eq. (%)	Org. C (%)	Total N (%)	C/N	E.C. (mS/cm)	Sat. H2O (%)	Cations in Saturation Extract (me/l)			
							Na	K	Ca	Mg
LFH	-	8.48	0.61	14	-	-	-	-	-	-
Ae	-	0.87	0.02	44	1.1	52	-	-	-	-
AB	-	0.98	0.06	16	0.4	40	-	-	-	-
Bt	-	0.64	0.05	13	0.1	40	-	-	-	-
BC	-	-	-	-	0.1	46	-	-	-	-
IIBCk	2.8	-	-	-	0.4	47	1.7	0.02	2.5	1.4
IICk	8.5	-	-	-	0.4	52	2.0	0.04	1.7	1.1

Hori.	TEC (me/100g)	Exchange Cations (me/100g)				Base Sat. (%)	Perm. Charge CEC (me/100g)				Base Sat. (%)
		Na	K	Ca	Mg		Al	Ca	Mg	Total	
LFH	37.5	0.4	1.3	27.1	3.6	87	5.0	45.0	6.2	56.2	91
Ae	-	-	-	-	-	-	0.1	4.3	0.4	4.8	98
AB	12.8	0.2	0.3	8.9	3.2	99	0.1	8.4	1.1	9.6	99
Bt	21.9	0.3	0.4	8.6	5.5	68	3.1	11.7	5.7	20.5	85
BC	23.7	0.4	0.4	11.1	7.2	80	1.7	12.5	3.0	17.2	90
IIBCk	19.9	0.8	0.3	29.0	7.3	100	-	-	-	-	-
IICk	15.5	1.2	0.4	41.8	7.8	100	-	-	-	-	-

DESCRIPTION OF A PROFILE IN THE DOVER SOIL GROUP - SITE M77-15

Soil Unit:	DOV1
Location:	SW10-95-8-W4
Classification:	Orthic Gray Luvisol
Landform:	
Genetic Material:	Mixed glaciolacustrine; fine-loamy
Surface Expression:	Level
Site Features:	Moderately well drained; medium perviousness; slightly stony
Vegetation:	Upland coniferous forest; white spruce, aspen, rose, sarsaparilla, club moss, feathermosses

Profile Description:

LFH - 8 to 0 cm; spongy matt mainly of moss composition, with some needles and leaves; permeated with fungal hyphae; abundant, fine to medium, horizontal roots; abrupt, wavy boundary.

Ae1 - 0 to 7 cm; light gray (10YR 6/2 d; 10YR 4/2 m); silt loam; strong, medium platy; very friable; few, very fine and fine, and very few, medium and coarse, oblique roots; less than 5% coarse fragments; gradual, wavy boundary.

Ae2 - 7 to 12 cm; light gray (10YR 6/2 d; 10YR 4.5/3 m) silt loam; moderate, medium platy; friable; few, fine to medium, oblique roots; less than 5% coarse fragments; gradual, wavy boundary.

AB - 12 to 17 cm; light gray (10YR 6/2 d; 10YR 4/3 m); clay loam; moderate, coarse platy to moderate, fine subangular blocky; friable; very few, very fine and fine, oblique roots; less than 5% coarse fragments; gradual, wavy boundary.

Bt1 - 17 to 59 cm; pale brown (10YR 6/3 d; 10YR 4/3 m); clay; strong, coarse subangular blocky; firm; very few, very fine, vertical roots; less than 2% coarse fragments; gradual, smooth boundary.

Bt2 - 59 to 63 cm; brown (10YR 5.5/3 d; 10YR 3.5/3 m); clay loam; moderate, medium subangular blocky; firm; very few roots; less than 2% coarse fragments; gradual, smooth boundary.

C - 63 to 73 cm; brown (10YR 5/3 d; 10YR 3.5/3 m); clay loam; massive; firm; very few roots; less than 5% coarse fragments; diffuse, smooth boundary.

Ck1 - 73 to 85 cm; brown (10YR 5/3 d; 10YR 3/3 m); loam; massive; firm; very few roots; less than 5% coarse fragments; diffuse, smooth boundary.

Ck2 - 85 to 105 cm; brown (10YR 5/3 d; 10YR 4/3 m); loam; massive; firm; very few roots; less than 5% coarse fragments; diffuse, smooth boundary.

Ck3 - 105 to 120 cm; brown (10YR 5.5/3 d; 10YR 3/3 m); loam; massive; firm; very few roots; less than 5% coarse fragments.

ANALYSIS OF SOIL AT M77-15

Horizon	Particle Size Distribution (%)									pH	pH
	Sand	VCS	CS	MS	FS	VFS	Silt	Clay	Fine C	CaCl2	H2O
LFH	-	-	-	-	-	-	-	-	-	-	-
Ae1	25	tr	2	5	7	11	65	10	-	4.4	5.1
Ae2	24	tr	1	5	8	10	56	20	-	4.4	5.0
AB	21	tr	1	4	7	9	43	36	11	4.5	4.7
Bt1	17	tr	1	4	8	4	29	54	23	4.5	4.7
Bt2	28	tr	2	9	28	4	42	30	11	4.7	4.9
C	35	tr	3	11	35	5	34	31	17	5.1	5.4
Ck1	43	tr	3	13	20	7	37	20	8	6.6	7.0
Ck2	42	1	4	13	18	6	35	23	7	7.3	7.5
Ck3	45	tr	4	14	20	7	36	19	7	7.6	7.8

Horizon	CaCO3 eq. (%)	Org. C (%)	Total N (%)	C/N	E.C. (mS/cm)	Sat. H2O (%)	Cations in Saturation Extract (me/l)			
							Na	K	Ca	Mg
LFH	-	-	-	-	0.1	-	-	-	-	-
Ae1	-	0.45	0.03	15	0.1	40	-	-	-	-
Ae2	-	0.31	0.02	16	0.1	40	-	-	-	-
AB	-	-	-	-	0.1	40	-	-	-	-
Bt1	-	-	-	-	0.1	44	-	-	-	-
Bt2	-	-	-	-	0.1	46	-	-	-	-
C	-	-	-	-	0.1	40	0.6	0.01	1.0	0.6
Ck1	2.2	-	-	-	0.3	40	0.6	0.01	2.1	1.2
Ck2	-	-	-	-	0.4	50	1.2	0.02	2.0	1.0
Ck3	-	-	-	-	0.4	50	2.5	0.03	1.8	0.9

Hori.	TEC (me/100g)	Exchange Cations (me/100g)				Base Sat. (%)	Perm. Charge CEC (me/100g)				Base Sat. (%)
		Na	K	Ca	Mg		Al	Ca	Mg	Total	
LFH	-	-	-	-	-	-	-	-	-	-	-
Ae1	4.1	0.02	0.1	1.4	0.6	52	-	-	-	-	-
Ae2	4.2	0.3	0.1	1.5	0.8	62	-	-	-	-	-
AB	10.9	1.0	0.4	4.2	3.3	82	-	-	-	-	-
Bt1	18.8	0.3	0.5	7.4	6.4	78	-	-	-	-	-
Bt2	16.7	0.2	0.4	7.9	6.4	89	-	-	-	-	-
C	14.3	0.3	0.3	7.6	5.6	97	-	-	-	-	-
Ck1	11.1	0.3	0.2	7.6	5.0	100	-	-	-	-	-
Ck2	-	-	-	-	-	-	-	-	-	-	-
Ck3	-	-	-	-	-	-	-	-	-	-	-

DESCRIPTION OF A PROFILE IN THE DOVER SOIL GROUP - SITE M77-17

Soil Unit: DOV1

Location: NE11-87-10-W4

Classification: Solonetzic Gray Luvisol

Landform:

Genetic Material: Glaciolacustrine veneer overlying morainal material; fine-clayey

Surface Expression: Undulating veneer; very gentle slopes

Site Features: Mid slope position; north aspect; moderately well drained; low perviousness; non-stony; water table at 1.5 m.

Vegetation: Upland coniferous forest; white spruce, aspen, buffalo-berry, twin-flower, feathermoss, club moss

Profile Description:

LFH - 9 to 0 cm; slightly to moderately decomposed, spongy matt mainly of moss origin; permeated with fungal hyphae; clear, wavy boundary.

Ahe - 0 to 7 cm; grayish brown (10YR 5/2 d; 10YR 3/2 m); silty clay loam; moderate, medium platy; friable; clear, wavy boundary.

Ae - 7 to 11 cm; pale brown (10YR 6/3 d; 10YR 4/3 m); silty clay loam; moderate, coarse platy; friable; gradual, smooth boundary.

AB - 11 to 27 cm; pale brown (10YR 6/3 d; 10YR 4/3 m); heavy clay; strong, medium subangular blocky; firm; diffuse, smooth boundary.

Bt - 27 to 60 cm; brown (10YR 5.5/3 d; 10YR 3/3 m); heavy clay; strong, medium subangular blocky; firm; diffuse, smooth boundary.

BC - 60 to 85 cm; brown (10YR 5/3 d; 10YR 3/3 m); clay loam; moderate, fine subangular blocky; firm; clear, wavy boundary.

IICk - 85 to 150 cm; pale brown (10YR 6/3 d; 10YR 3.5/3 m); loam; massive; firm.

ANALYSIS OF SOIL AT SITE M77-17

Horizon	Particle Size Distribution (%)									pH	pH
	Sand	VCS	CS	MS	FS	VFS	Silt	Clay	Fine C	CaCl2	H2O
LFH	-	-	-	-	-	-	-	-	-	4.2	4.4
Ahe	11	tr	1	3	4	3	59	30	7	4.8	5.3
Ae	9	tr	1	2	4	2	53	38	11	4.5	5.1
AB	5	tr	tr	1	2	1	35	60	27	4.3	4.5
Bt	8	tr	1	2	4	1	31	61	27	4.6	4.9
BC	26	0	tr	3	16	7	38	36	20	5.7	5.9
IICk	33	tr	tr	2	14	16	41	26	14	7.0	7.0

Horizon	CaCO3 eq. (%)	Org. C (%)	Total N (%)	C/N	E.C. (mS/cm)	Sat. H2O (%)	Cations in Saturation Extract (me/l)			
							Na	K	Ca	Mg
LFH	-	34.32	1.23	28	-	-	-	-	-	-
Ahe	-	3.09	0.18	17	0.1	77	-	-	-	-
Ae	-	0.67	0.07	10	0.1	58	-	-	-	-
AB	-	0.74	0.06	12	0.1	70	-	-	-	-
Bt	-	0.61	0.04	15	0.1	78	-	-	-	-
BC	-	-	-	-	0.1	60	-	-	-	-
IICk	-	-	-	-	0.4	60	2.35	0.02	1.64	1.00

Hori.	TEC (me/100g)	Exchange Cations (me/100g)				Base Sat. (%)	Perm. Charge CEC (me/100g)				Base Sat. (%)
		Na	K	Ca	Mg		Al	Ca	Mg	Total	
LFH	89.4	1.0	2.5	42.5	7.2	60	-	-	-	-	-
Ahe	18.8	0.2	0.7	7.6	4.1	67	-	-	-	-	-
Ae	14.9	0.2	0.4	5.2	4.2	67	-	-	-	-	-
AB	26.4	1.1	0.5	8.4	8.2	69	-	-	-	-	-
Bt	25.5	0.9	0.6	10.0	10.1	85	-	-	-	-	-
BC	16.1	0.4	0.3	8.2	7.7	100	-	-	-	-	-
IICk	9.9	1.1	0.2	6.9	5.5	100	-	-	-	-	-

DESCRIPTION OF A PROFILE IN THE DOVER SOIL GROUP - SITE M78-35

Soil Unit:	DOV1
Location:	SE25-92-17-W4
Classification:	Orthic Gray Luvisol (Dover series)
Landform:	
Genetic Material:	Mixed glaciolacustrine; fine-clayey
Surface Expression:	Undulating; very gentle slopes
Site Features:	Upper slope position; southwest aspect; moderately well drained; medium perviousness; non-stony
Vegetation:	Upland mixed forest; white spruce, aspen, low shrubs and herbs

Profile Description:

LF	- 5 to 0 cm; brown to dark brown; slightly to moderately decomposed leaves and needles, plentiful fungi; plentiful fine to coarse, horizontal roots; abrupt wavy boundary.
Ae1	- 0 to 4 cm; light brownish gray (10YR 6/2 m); silt; moderate medium platy; friable; few, fine to coarse, horizontal and oblique roots; 5% coarse fragments; clear, wavy boundary.
Ae2	- 4 to 14 cm; brown (7.5 YR 5/3 m); silt loam; strong, coarse platy; friable; few, fine to coarse, oblique and vertical roots; 5% coarse fragments; clear, wavy boundary.
Bt1	- 14 to 32 cm; reddish brown (5YR 4/3 m); silty clay; strong, medium, subangular blocky; firm; few, fine and medium, vertical roots; 5% coarse fragments; gradual, smooth boundary.
Bt2	- 32 to 55 cm; reddish brown (5YR 4/3 m); silty clay; weak, medium columnar breaking to strong, medium, subangular blocky; firm; very few, fine and medium, vertical roots; <5% coarse fragments; gradual, smooth boundary.
BC	- 55 to 80 cm; dark brown (10YR 4/3 m); clay loam; weak, medium, subangular blocky; firm; very few roots; <5% coarse fragments.

ANALYSIS OF SOIL AT SITE M78-35

Horizon	Particle Size Distribution (%)									pH	pH
	Sand	VCS	CS	MS	FS	VFS	Silt	Clay	Fine C	CaCl2	H2O
LF	-	-	-	-	-	-	-	-	-	5.6	6.0
Ae1	8	-	-	-	-	-	83	9	-	3.4	3.8
Ae2	11	-	-	-	-	-	78	11	-	4.4	4.9
Bt1	15	-	1	3	6	5	41	44	-	4.4	4.6
Bt2	15	0.2	1	3	6	5	42	43	-	4.4	5.1
BC	38	1	4	9	14	10	29	33	-	6.9	7.2

Horizon	CaCO3 eq. (%)	Org. C (%)	Total N (%)	C/N	E.C. (mS/cm)	Sat. H2O (%)	Cations in Saturation Extract (me/l)			
							Na	K	Ca	Mg
LF	-	38.52	2.54	15	-	-	-	-	-	-
Ae1	-	1.45	0.10	15	-	-	-	-	-	-
Ae2	-	0.65	0.06	11	-	-	-	-	-	-
Bt1	-	0.55	0.05	11	-	-	-	-	-	-
Bt2	-	0.64	0.05	13	-	-	-	-	-	-
BC	-	-	-	-	-	-	-	-	-	-

Hori.	TEC (me/100g)	Exchange Cations (me/100g)				Base Sat. (%)	Perm. Charge CEC (me/100g)				Base Sat. (%)
		Na	K	Ca	Mg		Al	Ca	Mg	Total	
LF	94.9	0.2	4.1	58.3	3.8	70	-	-	-	-	-
Ae1	10.1	0.1	0.1	0.9	0.4	15	3.0	1.6	1.1	5.7	47
Ae2	8.0	0.1	0.1	2.0	1.0	40	5.3	2.8	1.6	9.7	45
Bt1	19.2	0.1	0.2	6.4	3.7	54	2.4	8.5	0.4	11.3	79
Bt2	20.9	0.4	0.3	8.3	4.8	66	1.5	11.7	0.6	13.8	89
BC	15.6	0.8	0.2	10.9	4.8	100	0.2	10.8	0.5	11.5	98

DESCRIPTION OF A PROFILE IN THE DOVER SOIL GROUP - SITE M78-56

Soil Unit: DOV1

Location: NE2-87-9-W4

Classification: Solonetzic Gray Luvisol

Landform:

Genetic Material: Fine-clayey glaciolacustrine veneer overlying fine-loamy morainal material

Surface Expression: Level to undulating

Site Features: Level site; moderately well to imperfectly drained; medium to low perviousness; non-stony

Vegetation: Upland aspen forest; aspen, willow, cranberry, fireweed, grasses

Profile Description:

LF - 7 to 0 cm; brown and dark brown; slightly to moderately decomposed leaves; abundant roots.

Aegj - 0 to 12 cm; grayish brown (2.5 Y 5.5/2 m); silt loam; strong, coarse platy; friable; clear, wavy boundary.

ABgj - 12 to 18 cm; pinkish gray (5YR 6/2 m); clay loam; strong, coarse, subangular blocky; slightly sticky and firm; gradual, smooth boundary.

Btnj1 - 18 to 27 cm; reddish brown (5YR 4/3 m); clay; strong, medium and fine, subangular blocky; slightly sticky and firm; gradual, smooth boundary.

Btnj2 - 27 to 48 cm; very dark gray (5YR 3/1 m); heavy clay; moderate, medium columnar breaking to strong, fine, subangular blocky; slightly sticky and firm; gradual, smooth boundary.

IIBCK - 48 to 66 cm; brown (7.5YR 4/2 m); clay loam; moderate, medium, subangular blocky; firm; gradual, smooth boundary.

IICk - 66 to 85 cm; dark yellowish brown (10YR 4/4 m); clay loam; massive; banded; firm; less than 5% coarse fragments.

ANALYSIS OF SOIL AT SITE M78-56

Horizon	Particle Size Distribution (%)									pH	pH
	Sand	VCS	CS	MS	FS	VFS	Silt	Clay	Fine C	CaCl2	H2O
LFH	-	-	-	-	-	-	-	-	-	5.9	6.3
Aegj	27	-	2	7	12	6	59	14	-	5.6	5.0
ABgj	22	-	1	4	12	5	41	37	-	5.5	5.2
Btnj1	5	-	-	-	-	-	35	60	-	5.8	5.3
Btnj2	6	-	-	-	-	-	27	67	-	6.9	6.6
IIBCk	26	tr	1	6	12	6	38	36	-	8.0	7.8
IICk	38	-	2	8	18	10	35	27	-	8.1	7.9

Horizon	CaCO3 eq. (%)	Org. C (%)	Total N (%)	C/N	E.C. (mS/cm)	Sat. H2O (%)	Cations in Saturation Extract (me/l)			
							Na	K	Ca	Mg
LFH	-	18.32	1.16	16	-	-	-	-	-	-
Aegj	-	0.38	0.04	10	-	-	-	-	-	-
ABgj	-	0.48	0.05	10	-	-	-	-	-	-
Btnj1	-	0.75	0.07	11	-	-	-	-	-	-
Btnj2	-	1.10	0.08	14	-	-	-	-	-	-
IIBCk	7.3	-	-	-	-	-	-	-	-	-
IICk	8.7	-	-	-	-	-	-	-	-	-

Hori.	TEC (me/100g)	Exchange Cations (me/100g)				Base Sat. (%)	Perm. Charge CEC (me/100g)				Base Sat. (%)
		Na	K	Ca	Mg		Al	Ca	Mg	Total	
LFH	69.9	0.2	1.6	39.4	9.0	72	-	-	-	-	-
Aegj	6.8	0.1	0.1	3.2	1.1	66	-	-	-	-	-
ABgj	17.1	0.6	0.2	9.6	4.8	89	-	-	-	-	-
Btnj1	34.5	1.0	0.5	18.5	11.7	92	-	-	-	-	-
Btnj2	31.5	1.3	0.3	19.7	11.9	105	-	-	-	-	-
IIBCk	12.0	-	-	-	-	-	-	-	-	-	-
IICk	10.6	-	-	-	-	-	-	-	-	-	-

DESCRIPTION OF A PROFILE IN THE EAGLESHAM SOIL GROUP - SITE M78-68

Soil Unit: EGL1

Location: NE34-97-8-W4

Classification: Typic Mesisol

Landform:

- Genetic Material: Fen peat
- Surface Expression: Ribbed; partly netted

Site Features: Water table at surface; sample taken from rib.

Vegetation: Wetland fen community with ridges; sedges, bog bean, dwarf birch; tamarack, willow, bog laurel and mosses on ridges

Profile Description:

Om1 - 0 to 40 cm; light brown; fen peat; slightly to moderately decomposed; abundant fine roots; no wood fragments.

Om2 - 40 to 80 cm; brown; fen peat; slightly to moderately decomposed; plentiful fine roots; no wood fragments.

Om3 - 80 to 120 cm; dark brown; fen peat; slightly to moderately decomposed; plentiful fine roots; no wood fragments.

Om4 - 120 to 180 cm; dark brown; fen peat; moderately decomposed; no roots; no wood fragments.

IICg - 118+ cm; gray; sandy loam to sandy clay loam; massive; sticky.

ANALYSIS OF SOIL AT SITE M78-68

Horizon	Particle Size Distribution (%)			Fiber Content (%)		Water Capacity (%w/w)	Volume Wt. (g/cm3)	Ice (%w/v)
	Sand	Silt	Clay	Unrubbed	Rubbed			
Om1	-	-	-	73	21	946	0.083	-
Om2	-	-	-	46	13	909	0.101	-
Om3	-	-	-	38	18	744	0.118	-
Om4	-	-	-	44	18	675	0.144	-
IICg	-	-	-	-	-	-	-	-

Horizon	pH of Soil H2O	pH CaCl2	pH H2O	CaCO3 eq. (%)	Org. C. (%)	Total N (%)	C/N
Om1	6.7	5.6	-	-	50.56	3.29	15
Om2	-	5.8	-	-	51.23	4.08	13
Om3	6.4	5.6	-	-	49.15	3.57	14
Om4	-	5.7	-	-	40.19	3.01	13
IICg	-	6.1	6.6	-	-	-	-

Horizon	TEC (me/ 100g)	Exchange Cations (me/100g)				Base Sat. (%)	Ash (%)	Pyrophos. Index
		Na	K	Ca	Mg			
Om1	123.1	0.5	1.2	94.1	26.6	90	10.4	6
Om2	130.8	0.2	0.2	110.3	38.5	103	15.2	5
Om3	140.8	0.2	0.1	107.1	35.6	91	12.5	7
Om4	135.0	0.2	0.05	102.5	32.7	90	29.5	20
IICg	8.9	0.1	0.1	7.4	2.7	100	-	-

DESCRIPTION OF A PROFILE IN THE EAGLESHAM SOIL GROUP - SITE M78-101

Soil Unit: EGL1
Location: SW28-89-16-W4
Classification: Fibric Mesisol
Landform:
  Genetic Material: Fen peat
  Surface Expression: Level
Site Features: Water table at surface.
Vegetation: Wetland fen communities; sedges dwarf birch, tamarack

Profile Description:

Of1 - 0 to 50 cm; brown; fen peat; non to slightly decomposed; mainly medium and coarse fibres; many roots.

Om1 - 50 to 80 cm; brown; fen peat; slightly decomposed; medium and coarse fibres; very few roots.

Om2 - 80 to 120 cm; brown and dark brown forest-fen peat; moderately decomposed; medium fibres.

Om3 - 120 to 160 cm; dark brown; fen peat; moderately decomposed; fine fibres.

Om4 - 160 to 200 cm; dark brown; fen peat; slightly to moderately decomposed; fine fibres.

ANALYSIS OF SOIL AT SITE M78-101

Horizon	Particle Size Distribution (%)			Fiber Content (%)		Water Capacity (%w/w)	Volume Wt. (g/cm3)	Ice (%w/v)
	Sand	Silt	Clay	Unrubbed	Rubbed			
Of	-	-	-	-	-	-	0.069	-
Om1	-	-	-	72	33	1203	0.069	-
Om2	-	-	-	64	33	1163	0.078	-
Om3	-	-	-	66	20	1125	0.081	-
Om4	-	-	-	61	28	1210	0.083	-

Horizon	pH of Soil H20	pH CaCl2	pH H20	CaCO3 eq. (%)	Org. C. (%)	Total N (%)	C/N
Of	6.9	5.7	-	-	46.84	2.67	18
Om1	-	5.5	-	-	50.44	3.39	15
Om2	6.3	5.5	-	-	54.51	3.11	18
Om3	-	5.6	-	-	50.26	3.38	15
Om4	-	5.7	-	-	66.50	3.38	20

Horizon	TEC (me/100g)	Exchange Cations (me/100g)				Base Sat. (%)	Ash (%)	Pyrophos. Index
		Na	K	Ca	Mg			
Of	127.4	2.3	1.4	78.5	24.6	75	6.4	4
Om1	122.1	2.7	0.1	73.3	22.2	72	6.0	4
Om2	129.5	1.7	0.1	76.0	20.2	68	6.4	5
Om3	122.0	1.8	0.1	80.7	19.0	75	7.0	5
Om4	119.1	1.8	0.1	79.9	15.8	74	7.7	5

DESCRIPTION OF A PROFILE IN THE EAGLESHAM SOIL GROUP - SITE M78-106

Soil Unit: EGL1

Location: SE19-89-16-W8

Classification: Mesic Fibrisol

Landform:

Genetic Material: Bog; fibric sphagnum peat overlying mesic fen peat

Surface Expression: Level; slightly raised

Site Features: Water table at 0.4 m; site is on a tear drop island within a large fen

Vegetation: Wetland lightly forested tamarack and open muskeg; black spruce, willow, dwarf birch, sphagnum mosses, sedges

Profile Description:

Of1 - 0 to 80 cm; dark brown; sphagnum-fen peat; non to slightly decomposed; original plant structure; coarse and medium fibres; few roots; very few wood fragments.

Of2 - 80 to 120 cm; dark brown; fen-sphagnum peat; non to slightly decomposed; mainly original plant structures; medium and fine fibres; no roots; very few wood fragments.

Om1 - 120 to 160 cm; dark brown; fen-sphagnum peat; slightly to moderately decomposed; fine and medium fibres; no roots; very few wood fragments.

Om2 - 160 to 200 cm; dark brown; fen-sphagnum peat; slightly to moderately decomposed; fine and medium fibres; no roots; very few wood fragments.

ANALYSIS OF SOIL AT SITE M78-106

Horizon	Particle Size Distribution (%)			Fiber Content (%)		Water Capacity (%w/w)	Volume Wt. (g/cm3)	Ice (%w/v)
	Sand	Silt	Clay	Unrubbed	Rubbed			
Of1	-	-	-	100	46	1356	0.063	-
Of2	-	-	-	-	-	-	-	-
Om1	-	-	-	62	24	1088	0.082	-
Om2	-	-	-	66	26	1150	0.079	-

Horizon	pH of Soil H2O	pH CaCl2	pH H2O	CaCO3 eq. (%)	Org. C. (%)	Total N (%)	C/N
Of1	7.4	5.7	-	-	51.48	3.43	15
Of2	-	-	-	-	-	-	-
Om1	6.5	5.7	-	-	74.79	3.50	21
Om2	-	5.7	-	-	53.78	3.38	16

Horizon	TEC (me/100g)	Exchange Cations (me/100g)				Base Sat. (%)	Ash (%)	Pyrophos. Index
		Na	K	Ca	Mg			
Of1	141.6	2.1	0.3	98.2	23.9	79	8.6	5
Of2	-	-	-	-	-	-	-	-
Om1	119.0	2.6	0.2	83.5	19.8	80	6.6	5
Om2	122.4	2.5	0.1	82.7	19.3	77	6.6	4

DESCRIPTION OF A PROFILE IN THE EAGLESHAM SOIL GROUP - SITE M78-107

Soil Unit: EGL1

Location: SE19-89-16-W4

Classification: Fibric Mesisol

Landform:

  Genetic Material: Fen; fennic fibric peat over mesic peat

  Surface Expression: Level, with tear drop islands

Site Features: Water about 0.4 m above peat surface

Vegetation: Wetland fen communities; sedges

Profile Description:

Of1 - 0 to 40 cm; yellowish brown and pale brown; fen peat; non to slightly decomposed; mainly roots and crowns of sedges.

Of2 - 40 to 80 cm; dark brown; fen peat; non to slightly decomposed; fine to coarse fibres; few roots.

Om1 - 80 to 120 cm; dark brown; fen peat; slightly to moderately decomposed; fine to medium fibres; few roots.

Om2 - 120 to 160 cm; dark brown; fen peat; slightly to moderately decomposed; fine and medium fibres; no roots.

Om3 - 160 to 200 cm; dark brown; fen peat; moderately decomposed; fine and medium fibres; no roots.

ANALYSIS OF SOIL AT SITE M78-107

Horizon	Particle Size Distribution (%)			Fiber Content (%)		Water Capacity (%w/w)	Volume Wt. (g/cm3)	Ice (%w/v)
	Sand	Silt	Clay	Unrubbed	Rubbed			
Of1	-	-	-	79	65	1463	0.059	-
Of2	-	-	-	73	-	958	0.078	-
Om1	-	-	-	50	19	823	0.105	-
Om2	-	-	-	63	27	1073	0.089	-
Om3	-	-	-	55	30	966	0.096	-

Horizon	pH of Soil H2O	pH CaCl2	pH H2O	CaCO3 eq. (%)	Org. C. (%)	Total N (%)	C/N
Of1	6.7	5.8	-	-	48.80	2.56	19
Of2	-	5.6	-	-	51.41	1.19	43
Om1	6.4	5.6	-	-	57.66	3.54	16
Om2	-	5.6	-	-	58.27	3.51	17
Om3	-	5.6	-	-	58.27	3.38	17

Horizon	TEC (me/ 100g)	Exchange Cations (me/100g)				Base Sat. (%)	Ash (%)	Pyrophos. Index
		Na	K	Ca	Mg			
Of1	78.4	3.5	3.2	56.2	15.5	90	5.3	5
Of2	112.7	2.6	0.2	73.3	18.3	75	6.6	6
Om1	129.8	2.7	0.1	85.5	17.9	74	7.0	5
Om2	128.6	2.9	0.1	87.0	18.0	75	7.1	5
Om3	129.1	2.5	0.1	86.8	17.6	75	6.9	21

DESCRIPTION OF A PROFILE IN THE EAGLESHAM SOIL GROUP - SITE M78-116

Soil Unit:	EGL1
Location:	SE27-89-17-W4
Classification:	Typic Mesisol
Landform:	
Genetic Material:	Fen peat
Surface Expression:	Level
Site Features:	Water table at surface
Vegetation:	Wetland lightly forested tamarack and open muskeg; tamarack, black spruce, Potentilla sp., bog rosemary, Labrador tea, bog cranberry, bog bean, sedges

Profile Description:

Om1	- 0 to 40 cm; brown; forest-fen peat with some brown moss peat; slightly decomposed.
Om2	- 40 to 80 cm; brown; fen peat; slightly decomposed; plenty of fine roots.
Om3	- 80 to 120 cm; dark brown; fen peat; moderately decomposed.
Om4	- 120 to 160 cm; dark brown; fen-forest peat; moderately decomposed; few wood fragments.
Om5	- 160 to 200 cm; dark brown to black; fen-forest peat; moderately decomposed.
Om6	- 200 to 280 cm; not sampled.
IICg	- 280+ cm; clay loam to clay; not sampled.

ANALYSIS OF SOIL AT SITE M78-116

Horizon	Particle Size Distribution (%)			Fiber Content (%)		Water Capacity (%w/w)	Volume Wt. (g/cm3)	Ice (%w/v)
	Sand	Silt	Clay	Unrubbed	Rubbed			
Om1	-	-	-	76	35	1330	0.052	-
Om2	-	-	-	79	36	1218	0.074	-
Om3	-	-	-	57	21	896	0.103	-
Om4	-	-	-	64	27	862	0.103	-
Om5	-	-	-	51	14	855	0.107	-
Om6	-	-	-	-	-	-	-	-
IICg	-	-	-	-	-	-	-	-

Horizon	pH of Soil H20	pH CaCl2	pH H20	CaCO3 eq. (%)	Org. C. (%)	Total N (%)	C/N
Om1	6.6	5.6	-	-	46.51	2.41	19
Om2	-	5.6	-	-	55.42	4.14	13
Om3	6.2	5.2	-	-	52.72	3.14	17
Om4	-	5.1	-	-	52.86	2.70	20
Om5	-	5.1	-	-	53.58	3.24	16
Om6	-	-	-	-	-	-	-
IICg	-	-	-	-	-	-	-

Horizon	TEC (me/100g)	Exchange Cations (me/100g)				Base Sat. (%)	Ash (%)	Pyrophos. Index
		Na	K	Ca	Mg			
Om1	123.1	0.8	0.9	80.2	26.4	79	16.6	5
Om2	118.6	2.3	0.1	77.7	18.6	75	7.1	5
Om3	173.3	1.9	0.1	110.6	31.7	75	10.7	18
Om4	173.7	1.9	0.1	105.8	25.0	69	10.2	12
Om5	150.4	1.6	0.1	90.0	22.0	68	9.7	10
Om6	-	-	-	-	-	-	-	-
IICg	-	-	-	-	-	-	-	-

DESCRIPTION OF A PROFILE IN THE EAGLESHAM SOIL GROUP - SITE M78-119

Soil Unit:	EGL1
Location:	NW15-89-17-W4
Classification:	Typic Fibrisol
Landform:	
Genetic Material:	Fen peat
Surface Expression:	Level; collapse scar in peat plateau
Site Features:	Collapse scar surface about 1 m lower than plateau; peat plateau reforming in middle of scar
Vegetation:	Wetland fen communities; sedges brown mosses

Profile Description:

Of1 - 0 to 40 cm; very pale brown; fen peat; slightly decomposed; plenty of roots.

Of2 - 40 to 80 cm; as above.

Of3 - 80 to 120 cm; pale brown; fen-sphagnum peat; slightly decomposed.

Of4 - 120 to 160 cm; pale brown; fen peat; slightly decomposed.

Of5 - 160 to 200 cm; pale brown; fen peat; slightly decomposed.

ANALYSIS OF SOIL AT SITE M78-119

Horizon	Particle Size Distribution (%)			Fiber Content (%)		Water Capacity (%w/w)	Volume Wt. (g/cm3)	Ice (%w/v)
	Sand	Silt	Clay	Unrubbed	Rubbed			
Of1	-	-	-	100	76	2403	0.035	-
Of2	-	-	-	100	-	3039	0.029	-
Of3	-	-	-	98	87	1933	0.048	-
Of4	-	-	-	92	50	1864	0.047	-
Of5	-	-	-	94	63	1861	0.049	-

Horizon	pH of Soil H20	pH CaCl2	pH H20	CaC03 eq. (%)	Org. C. (%)	Total N (%)	C/N
Of1	4.1	3.0	-	-	59.66	1.00	60
Of2	-	3.2	-	-	49.36	0.63	78
Of3	4.3	3.2	-	-	54.21	0.75	72
Of4	-	3.5	-	-	53.51	1.55	35
Of5	-	3.8	-	-	53.70	2.26	24

Horizon	TEC (me/ 100g)	Exchange Cations (me/100g)				Base Sat. (%)	Ash (%)	Pyrophos. Index
		Na	K	Ca	Mg			
Of1	118.0	0.2	1.5	10.1	1.1	10	2.0	2
Of2	143.7	0.0	0.4	12.1	0.0	8	1.6	1
Of3	211.9	0.2	0.5	27.6	1.1	12	4.3	9
Of4	172.9	0.0	0.3	35.2	1.1	19	4.0	4
Of5	144.4	0.6	0.2	42.6	1.1	28	6.8	3

DESCRIPTION OF A PROFILE IN THE EAGLESHAM SOIL GROUP - SITE M78-123

Soil Unit: EGL1

Location: SW7-89-16-W4

Classification: Terric Mesic Humisol

Landform:

  Genetic Material: Fen; mesic fen peat overlying fine-loamy materials.

  Surface Expression: Level

Site Features: Water table about 0.2 m above surface

Vegetation: Wetland fen communities; sedges

Profile Description:

Om - 0 to 30 cm; dark brown; fen peat; moderately decomposed.

Oh1 - 30 to 70 cm; black; well decomposed.

Oh2 - 70 to 90 cm; black; well decomposed.

IICg - 90+ cm; gray; clay loam, massive.

ANALYSIS OF SOIL AT SITE M78-123

Horizon	Particle Size Distribution (%)			Fiber Content (%)		Water Capacity (%w/w)	Volume Wt. (g/cm^3)	Ice (%w/v)
	Sand	Silt	Clay	Unrubbed	Rubbed			
Om1	-	-	-	85	33	1143	0.074	-
Oh1	-	-	-	46	11	522	0.155	-
Oh2	-	-	-	42	6	397	0.227	-
IICg	-	-	-	-	-	-	-	-

Horizon	pH of Soil H_2O	pH $CaCl_2$	pH H_2O	$CaCO_3$ eq. (%)	Org. C. (%)	Total N (%)	C/N
Om1	7.3	5.5	-	-	55.66	2.66	21
Oh1	6.6	5.2	-	-	54.35	2.51	22
Oh2	-	5.1	-	-	54.80	2.32	24
IICg	-	5.8	6.3	-	-	-	-

Horizon	TEC (me/100g)	Exchange Cations (me/100g)				Base Sat. (%)	Ash (%)	Pyrophos. Index
		Na	K	Ca	Mg			
Om1	150.7	0.3	1.3	89.9	15.8	64	9.4	17
Oh1	225.4	0.2	0.1	129.2	15.0	58	18.4	93
Oh2	236.9	0.1	0.04	135.4	15.5	57	25.6	100
IICg	25.2	0.1	0.2	14.2	4.0	66	-	-

DESCRIPTION OF A PROFILE IN THE FIREBAG SOIL GROUP - SITE M77-2

Soil Unit:	FIR1
Location:	SW20-104-6-W4
Classification:	Eluviated Dystric Brunisol (Firebag Series)
Landform:	
Genetic Material:	Glaciofluvial ice contact deposits; sandy
Surface Expressions:	Undulating; gentle slopes
Site Features:	Mid slope position; east aspect; rapidly drained; high perviousness; non-stony
Vegetation:	Upland jack pine forest; jack pine, lichen, bearberry

Profile Description:

LFH	- 1 to 0 cm; slightly to moderately well decomposed needles and lichens; clear, smooth boundary.
Ae	- 0 to 6 cm; gray (10YR 5/1 d; 10YR 3/1 m); sand; single grain; loose; plentiful, very fine to medium, horizontal roots; clear, broken boundary.
AB	- 6 to 16 cm; very pale brown (10YR 6/3 d; 10YR 5/3 m); sand; single grain; loose; few, very fine to medium, oblique roots; clear, wavy boundary.
Bm	- 16 to 30 cm; yellow (10YR 6/6 d; 10YR 4/6 m); sand; single grain; loose; few, very fine to medium, vertical roots; gradual, wavy boundary.
BC	- 30 to 50 cm; very pale brown (10YR 6/4 d; 10YR 5/4 m); sand; single grain; loose; very few roots; gradual, smooth boundary.
C1	- 50 to 100 cm; pink (5YR 8/3 d; 5YR 6/3 m); sand; single grain; loose; very few roots; diffuse, smooth boundary.
C2	- at 110 cm; pink (5YR 8/3 d; 5YR 6/3 m); sand; single grain; loose; very few roots.
C3	- at 160 cm; pink (5YR 7.5/3 d; 5YR 6/3 m); sand; single grain; loose; very few roots.

ANALYSIS OF SOIL AT SITE M77-2

Horizon	Particle Size Distribution (%)									pH	pH
	Sand	VCS	CS	MS	FS	VFS	Silt	Clay	Fine C	CaCl2	H2O
LFH	-	-	-	-	-	-	-	-	-	3.7	4.3
Ae	99	0	4	43	50	2	1	-	-	3.9	4.9
AB	97	tr	4	42	48	3	3	-	-	4.3	5.0
Bm	98	0	2	36	56	4	2	-	-	4.8	5.5
BC	99	0	4	49	43	3	1	-	-	5.0	5.6
C1	100	0	11	68	21	tr	0.5	-	-	4.9	5.8
C2	100	tr	11	55	34	tr	0.5	-	-	4.8	5.8
C3	100	0	5	61	34	tr	0.5	-	-	4.8	5.7

Horizon	CaCO3 eq. (%)	Org. C (%)	Total N (%)	C/N	E.C. (mS/cm)	Sat. H2O (%)	Cations in Saturation Extract (me/l)			
							Na	K	Ca	Mg
LFH	-	36.97	0.39	95	-	-	-	-	-	-
Ae	-	0.49	0.02	24	-	-	-	-	-	-
AB	-	0.00	0.01	-	-	-	-	-	-	-
Bm	-	0.00	0.00	-	-	-	-	-	-	-
BC	-	-	-	-	-	-	-	-	-	-
C1	-	-	-	-	-	-	-	-	-	-
C2	-	-	-	-	-	-	-	-	-	-
C3	-	-	-	-	-	-	-	-	-	-

Hori.	TEC (me/100g)	Exchange Cations (me/100g)				Base Sat. (%)	Perm. Charge CEC (me/100g)				Base Sat. (%)
		Na	K	Ca	Mg		Al	Ca	Mg	Total	
LFH	46.7	0.5	2.0	8.1	2.8	29	4.4	17.5	2.9	24.8	82
Ae	2.3	0.3	0.02	0.3	0.1	29	0.2	0.6	0.04	0.8	80
AB	0.4	0.03	0.01	0.0	0.1	30	0.2	0.2	0.1	0.5	60
Bm	0.5	0.0	0.01	0.0	0.1	18	0.1	0.1	0.04	0.2	70
BC	0.3	0.01	0.01	0.0	0.03	17	0.4	0.3	0.04	0.7	49
C1	0.2	0.0	0.01	0.0	0.03	25	0.1	0.2	0.1	0.4	75
C2	0.1	0.04	0.0	0.0	0.03	100	0.1	0.3	0.1	0.5	80
C3	0.1	0.0	0.01	0.1	0.03	100	0.04	0.2	0.03	0.2	100

DESCRIPTION OF A PROFILE IN THE FIREBAG SOIL GROUP - SITE M77-23

Soil Unit: F1R2

Location: NW12-97-7-W4

Classification: Eluviated Eutric Brunisol

Landform:

Genetic Material: Glaciofluvial ice-contact deposits; sandy-skeletal

Surface Expression: Hummocky, kettled and gullied; gentle to strong slopes

Site Features: Mid position of gentle slope; west aspect; well-drained; high perviousness; exceedingly stony

Vegetation: Upland aspen forest; aspen, jack pine, alder

Profile Description:

LFH - 7 to 0 cm; slightly to moderately well decomposed leaves; abundant, very fine to medium, and very few coarse, horizontal roots; clear, wavy boundary.

Ae - 0 to 11 cm; light brownish gray (10YR 6/2 d; 10YR 4/2 m); gravelly coarse sand; single grain; loose; plentiful very fine and fine, and few medium and coarse, horizontal roots; about 50% coarse fragments; gradual, wavy boundary.

Bm - 11 to 20 cm; light yellowish brown (10YR 6/4 d; 10YR 4/4 m); gravelly coarse sand; single grain; very friable; plentiful very fine to medium, oblique and vertical roots; about 50% coarse fragements; smooth boundary.

Btj - 20 to 33 cm; yellowish brown (10YR 5/4 d; 10YR 3/4 m); gravelly coarse loam; single grain; very friable; few, very fine and fine, vertical roots; about 50% coarse fragments; gradual, smooth boundary.

BC - 33+ cm; light gray (10YR 6/2 d; 10YR 4/3 m); gravelly sandy loam; single grain to massive; hard; very few, very fine and fine, vertical roots; about 50% coarse fragments.

ANALYSIS OF SOIL AT SITE M77-23

Horizon	Particle Size Distribution (%) Sand	VCS	CS	MS	FS	VFS	Silt	Clay	Fine C	pH $CaCl_2$	pH H_2O
LFH	-	-	-	-	-	-	-	-	-	5.8	6.3
Ae	88	2	41	33	9	3	12	-	-	4.5	5.3
Bm	90	2	39	35	11	3	8	2	-	4.7	5.7
Btj	80	3	28	29	16	4	8	12	3	5.8	6.2
BC	55	1	6	18	23	7	30	15	2	5.3	6.0

Horizon	$CaCO_3$ eq. (%)	Org. C (%)	Total N (%)	C/N	E.C. (mS/cm)	Sat. H_2O (%)	Cations in Saturation Extract (me/l) Na	K	Ca	Mg
LFH	-	38.07	2.04	19	-	-	-	-	-	-
Ae	-	0.32	0.02	16	-	-	-	-	-	-
Bm	-	0.02	0.01	2	-	-	-	-	-	-
Btj	-	0.72	0.05	14	-	-	-	-	-	-
BC	-	-	-	-	-	-	-	-	-	-

Hori.	TEC (me/100g)	Exchange Cations (me/100g) Na	K	Ca	Mg	Base Sat. (%)	Perm. Charge CEC (me/100g) Al	Ca	Mg	Total	Base Sat. (%)
LFH	-	-	-	-	-	-	-	-	-	-	-
Ae	1.4	0.3	0.03	0.8	0.3	100	-	-	-	-	-
Bm	1.1	0.0	0.02	0.8	0.4	100	-	-	-	-	-
Btj	6.4	0.05	0.06	4.2	1.9	97	-	-	-	-	-
BC	3.6	0.01	0.05	2.0	1.1	88	-	-	-	-	-

DESCRIPTION OF A PROFILE IN THE FIREBAG SOIL GROUP - SITE M77-24

Soil Unit: FIR1

Location: SE10-98-4-W4

Classification: Eluviated Dystric Brunisol

Landform:

Genetic Material: Glaciofluvial; sandy

Surface Expression: Hummocky; gentle to moderate slopes

Site Features: Mid position of gentle slope; northeast aspect; rapidly drained; high perviousness; very stony

Vegetation: Upland jack pine forest; jack pine, lichens

Profile Description:

LFH - 1 to 0 cm; slightly to moderately well decomposed needles and lichens; few, fine to medium, horizontal roots; clear, smooth boundary.

Ae - 0 to 12 cm; light gray (10YR 7/1.5 d; 10YR 5/2 m); gravelly sand; single grain; loose; few, fine to coarse, horizontal roots; 20 to 30% coarse fragments; clear, irregular boundary - tonguing to about 50 cm in places.

Bfj - 12 to 28 cm; light yellowish brown (10YR 6/5 d; 10YR 4/5 m; 7.5YR 5/6 m in field); gravelly sand; single grain; loose; very few, fine and medium, oblique roots; 20 to 30% coarse fragments; gradual, smooth boundary.

Bm - 28 to 68 cm; brownish yellow (10YR 6/6 d; 10YR 4/6 m); gravelly sand; single grain; loose; very few, fine and medium, oblique roots; 20 to 30% coarse fragments; diffuse, smooth boundary.

C - 68 to 115 cm; very pale brown (10YR 6/3 d; 10YR 5/4 m); gravelly sand; single grain; loose; very few roots; 20 to 30% coarse fragments.

ANALYSIS OF SOIL AT SITE M77-24

Horizon	Particle Size Distribution (%) Sand	VCS	CS	MS	FS	VFS	Silt	Clay	Fine C	pH CaCl2	pH H2O
LFH	-	-	-	-	-	-	-	-	-	3.9	4.5
Ae	92	1	12	48	29	2	7	1	-	4.3	5.3
Bfj	94	tr	10	50	33	1	3	3	-	4.9	5.7
Bm	96	tr	10	51	34	1	-	4	-	4.7	5.9
C	96	tr	5	41	46	3	-	4	-	4.8	5.9

Horizon	CaCO3 eq. (%)	Org. C (%)	Total N (%)	C/N	E.C. (mS/cm)	Sat. H2O (%)	Cations in Saturation Extract (me/l) Na	K	Ca	Mg
LFH	-	7.48	0.20	37	-	-	-	-	-	-
Ae	-	0.19	0.01	19	-	-	-	-	-	-
Bfj	-	0.10	0.01	10	-	-	-	-	-	-
Bm	-	0.06	0.00	-	-	-	-	-	-	-
C	-	-	-	-	-	-	-	-	-	-

Hori.	TEC (me/100g)	Exchange Cations (me/100g) Na	K	Ca	Mg	Base Sat. (%)	Perm. Charge CEC (me/100g) Al	Ca	Mg	Total	Base Sat. (%)
LFH	31.2	0.03	0.8	7.1	0.5	27	-	-	-	-	-
Ae	0.7	0.04	0.01	0.4	0.1	79	-	-	-	-	-
Bfj	1.1	0.02	0.03	0.2	0.1	32	-	-	-	-	-
Bm	0.8	0.0	0.03	0.4	0.2	79	-	-	-	-	-
C	0.4	0.0	0.01	0.2	0.05	65	-	-	-	-	-

DESCRIPTION OF A PROFILE IN THE FIREBAG SOIL GROUP - SITE M77-28

Soil Unit: FIR2

Location: NE31-96-9-W4

Classification: Eluviated Dystric Brunisol (Firebag Series)

Landform:

  Genetic Material: Glaciofluvial ice-contact deposits; sandy

  Surface Expression: Hummocky and ridged; moderate slopes

Site Features: Lower slope position; north aspect; rapidly drained; high perviousness; non-stony

Vegetation: Upland jack pine forest; jack pine, blueberry, bearberry, lichens

Profile Description:

LFH - 2 to 0 cm; slightly to moderately well decomposed needles and lichens; clear, wavy boundary.

Ahe - 0 to 7 cm; grayish brown (10YR 5/2.5 d; 10YR 3/2 m); sand; single grain; loose; plentiful, very fine to medium and very few, coarse, horizontal roots; clear, wavy boundary.

Ae - 7 to 16 cm; light yellowish brown (10YR 6/4 d; 10YR 4/4 m); single grain; loose; few, very fine to medium and very few, coarse, oblique roots; clear, wavy boundary.

Bm - 16 to 37 cm; yellowish brown (10YR 5/5 d; 10YR 4/5 m); sand; single grain; loose; few, very fine and fine, and very few, medium and coarse, vertical roots; diffuse, smooth boundary.

BC - 37 to 55 cm; brown (10YR 4.5/3 d; 10YR 3/3 m); sand; single grain; loose; very few roots; gradual, smooth boundary.

C - 55+ cm; brown (10YR 5/3 d; 10YR 3/3 m); sand; single grain; loose; very few roots.

ANALYSIS OF SOIL AT SITE M77-28

Horizon	Particle Size Distribution (%)									pH	pH
	Sand	VCS	CS	MS	FS	VFS	Silt	Clay	Fine C	CaCl2	H2O
LFH	-	-	-	-	-	-	-	-	-	4.2	4.5
Ahe	95	0	4	61	28	2	5	-	-	4.5	5.3
Ae	94	0	3	57	32	2	6	-	-	4.5	5.2
Bm	95	0	3	59	31	2	5	-	-	5.0	5.9
BC	96	0	2	53	38	3	4	-	-	5.1	6.1
C	97	0	2	58	35	2	3	-	-	4.9	6.1

Horizon	CaCO3 eq. (%)	Org. C (%)	Total N (%)	C/N	E.C. (mS/cm)	Sat. H2O (%)	Cations in Saturation Extract (me/l)			
							Na	K	Ca	Mg
LFH	-	32.92	0.79	42	-	-	-	-	-	-
Ahe	-	1.07	0.02	54	-	-	-	-	-	-
Ae	-	0.21	0.01	21	-	-	-	-	-	-
Bm	-	0.14	0.01	14	-	-	-	-	-	-
BC	-	-	-	-	-	-	-	-	-	-
C	-	-	-	-	-	-	-	-	-	-

Hori.	TEC (me/100g)	Exchange Cations (me/100g)				Base Sat. (%)	Perm. Charge CEC (me/100g)				Base Sat. (%)
		Na	K	Ca	Mg		Al	Ca	Mg	Total	
LFH	46.7	0.1	2.6	9.4	0.8	27	0.0	17.5	5.8	23.3	100
Ahe	3.2	0.02	0.03	0.4	0.2	20	-	-	-	-	-
Ae	1.2	0.02	0.02	0.0	0.05	8	-	-	-	-	-
Bm	0.9	0.01	0.02	0.0	0.2	26	-	-	-	-	-
BC	0.5	0.1	0.01	0.0	0.0	22	-	-	-	-	-
C	0.4	0.02	0.02	0.0	0.05	23	-	-	-	-	-

DESCRIPTION OF A PROFILE IN THE FIREBAG SOIL GROUP - SITE M77-29

Soil Unit: Sampled in LGD1 unit

Location: NW9-100-12-W4

Classification: Orthic Gray Luvisol

Landform:

- Genetic Material: Morainal (kame inclusion); sandy
- Surface Expression: Hummocky; moderate slopes

Site Features: Upper slope position; northeast aspect; well drained; high perviousness; moderately stony

Vegetation: Upland jack pine forest; jack pine, bearberry, Labrador tea, lichens

Profile Description:

LFH - 2 to 0 cm; slightly to moderately well decomposed needles and lichens; clear, wavy boundary.

Ae - 0 to 7 cm; light brownish gray (10YR 6.5/2 d; 10YR 4/2 m); sandy loam; weak, medium platy; friable; plentiful, very fine to medium and few, coarse, horizontal roots; 10 to 20% coarse fragments; clear, wavy boundary.

Bt - 7 to 17 cm; light yellowish brown (10YR 6/5 d; 10YR 4/5 m); fine sandy loam; weak, fine subangular blocky; friable; plentiful, very fine to medium, oblique roots; 10 to 20% coarse fragments; gradual, smooth boundary.

Bm - 17 to 35 cm; light yellowish brown (10YR 6/5 d; 10YR 4/5 m); fine sand; single grain; very friable; plentiful, very fine to medium, oblique roots; 10 to 20% coarse fragments; gradual, smooth boundary.

BC - 35 to 50 cm; light yellowish brown (10YR 6/4 d; 10YR 4/4 m); sand; single grain; very friable; very few, very fine to coarse, vertical roots; 10 to 20% coarse fragments; diffuse, smooth boundary.

C - 50 to 80 cm; dark grayish brown; sand; single grain; loose; very few roots; 10 to 20% coarse fragments.

ANALYSIS OF SOIL AT SITE M77-29

Horizon	Particle Size Distribution (%) Sand	VCS	CS	MS	FS	VFS	Silt	Clay	Fine C	pH CaCl2	pH H2O
LFH	-	-	-	-	-	-	-	-	-	3.6	4.0
Ae	64	1	9	27	20	7	36	-	-	3.7	4.4
Bt	67	1	3	15	40	8	22	11	3	4.5	5.3
Bm	92	tr	1	37	52	1	4	4	-	4.7	5.5
BC	88	tr	11	65	10	1	9	3	-	4.8	5.5
C	91	1	12	40	34	4	8	1	1	5.1	5.7

Horizon	CaCO3 eq. (%)	Org. C (%)	Total N (%)	C/N	E.C. (mS/cm)	Sat. H2O (%)	Cations in Saturation Extract (me/l) Na	K	Ca	Mg
LFH	-	22.46	0.61	37	-	-	-	-	-	-
Ae	-	0.69	0.03	23	-	-	-	-	-	-
Bt	-	0.67	0.03	22	-	-	-	-	-	-
Bm	-	0.69	0.00	-	-	-	-	-	-	-
BC	-	-	-	-	-	-	-	-	-	-
C	-	-	-	-	-	-	-	-	-	-

Hori.	TEC (me/100g)	Exchange Cations (me/100g) Na	K	Ca	Mg	Base Sat. (%)	Perm. Charge CEC (me/100g) Al	Ca	Mg	Total	Base Sat. (%)
LFH	39.3	0.1	0.9	6.4	0.7	20	0.0	25.0	7.4	32.4	
Ae	3.5	0.01	0.1	0.4	0.2	19	-	-	-	-	
Bt	7.4	0.02	0.1	0.7	0.2	14	-	-	-	-	
Bm	1.4	0.01	0.03	0.3	0.2	39	-	-	-	-	
BC	1.3	0.01	0.03	0.3	0.1	34	-	-	-	-	
C	1.5	0.02	0.05	0.9	0.3	85	-	-	-	-	

DESCRIPTION OF A PROFILE IN THE FIREBAG SOIL GROUP - SITE M77-38

Soil Unit: FIR3

Location: SE31-102-6-W4

Classification: Eluviated Eutric Brunisol

Landform:

Genetic Material: Glaciofluvial ice-contact deposits; sandy

Surface Expression: Hummocky; moderate to strong slopes

Site Features: Upper slope position; northeast aspect; very rapidly drained; high perviousness; slightly stony and rocky

Vegetation: Upland aspen forest; aspen, white birch; upland jack pine community type is dominant in the area

Profile Description:

LF - 3 to 1 cm; slightly decomposed leaves; permeated with fungal hyphae.

H - 1 to 0 cm; moderately well to well decomposed; abundant, fine and medium, horizontal roots; diffuse, smooth boundary.

Ahe - 0 to 4 cm; very dark grayish brown (10YR 3/2 m); light gray (10YR 7/1 m) patches; sand; single grain; loose; abundant, fine and medium, horizontal roots; gradual, wavy boundary.

Ae - 4 to 12 cm; white (10YR 8/2 d); sand; single grain; loose; abundant, fine and medium, horizontal and oblique roots; less than 10% coarse fragments; gradual, wavy boundary.

Bm - 12 to 27 cm; light brownish yellow (10YR 6/4 m); sand; single grain; loose; plentiful, fine and medium, oblique roots; less than 10% coarse fragments; gradual, wavy boundary.

BC - 27 to 100 cm; yellow (10YR 8/6 m); dark yellowish brown (10YR 4/4) splotches; sand; single grain; loose; few, fine and medium, vertical roots; less than 10% coarse fragments; gradual, wavy boundary.

C - 100+ cm; pink (7.5YR 8/4); sand; single grain; loose; very few roots; less than 10% coarse fragments.

ANALYSIS OF SOIL AT SITE M77-38

Horizon	Particle Size Distribution (%)									pH	pH
	Sand	VCS	CS	MS	FS	VFS	Silt	Clay	Fine C	CaCl2	H2O
LF	-	-	-	-	-	-	-	-	-	-	6.1
H	-	-	-	-	-	-	-	-	-	-	6.4
Ahe	85	tr	7	37	29	12	14	1	1	-	6.3
Ae	79	1	4	24	34	16	21	-	-	-	6.0
Bm	67	1	4	26	25	11	28	5	4	-	6.0
BC	96	tr	4	56	32	4	4	-	-	-	6.7
C	99	0	4	65	29	1	1	-	-	-	6.9

Horizon	CaCO3 eq. (%)	Org. C (%)	Total N (%)	C/N	E.C. (mS/cm)	Sat. H2O (%)	Cations in Saturation Extract (me/l)			
							Na	K	Ca	Mg
LF	-	40.52	1.20	34	-	-	-	-	-	-
H	-	14.91	0.66	23	-	-	-	-	-	-
Ahe	-	3.29	0.11	30	0.2	18	0.1	0.1	1.5	1.2
Ae	-	0.30	0.012	25	0.2	16	0.2	0.05	1.3	1.6
Bm	-	0.38	0.018	21	-	-	-	-	-	-
BC	-	0.06	0.002	30	-	-	-	-	-	-
C	-	0.03	-	-	-	-	-	-	-	-

Hori.	TEC (me/100g)	Exchange Cations (me/100g)				Base Sat. (%)	Perm. Charge CEC (me/100g)				Base Sat. (%)
		Na	K	Ca	Mg		Al	Ca	Mg	Total	
LF	83.1	0.03	2.9	63.8	15.4	99	-	-	-	-	-
H	48.1	0.02	1.0	36.9	5.9	91	-	-	-	-	-
Ahe	-	-	-	-	-	-	-	-	-	-	-
Ae	-	-	-	-	-	-	-	-	-	-	-
Bm	-	-	-	-	-	-	-	-	-	-	-
BC	-	-	-	-	-	-	-	-	-	-	-
C	-	-	-	-	-	-	-	-	-	-	-

DESCRIPTION OF A PROFILE IN THE GIPSY* SOIL GROUP - SITE M78-11

Soil Unit:	Sampled in KNS1 unit
Location:	16-95-4-W4
Classification:	Eluviated Dystric Brunisol
Landform:	
Genetic Material:	Morainal; sandy
Surface Expression:	Undulating; very gentle slopes
Site Features:	Upper slope positions; southwest aspect; rapidly drained; high perviousness; moderately stony
Vegetation:	Upland jack pine; jack pine, Labrador tea, blueberry, lichens

Profile Description:

LF - 1 to 0 cm; brown; relatively undecomposed thin layer of needles, leaves and lichens; plentiful, fine to coarse, horizontal roots; abrupt, wavy boundary.

Ae - 0 to 20 cm; white (10YR 8/1 m); loamy sand; moderate, medium platy; very friable; plentiful, fine to medium, oblique roots; 5% coarse fragments; clear, irregular boundary - deeply tongued (up to 20 cm into Bfj horizon) in places.

Bfj - 20 to 40 cm; brown (7.5YR 4/4 m); sand; weak, medium subangular blocky; friable; few, fine to coarse, oblique roots; 5% coarse fragments; clear, wavy boundary.

Bm - 40 to 55 cm; yellowish brown (10YR 5/6 m); sand; single grain; loose; very few, fine and medium roots; 5% coarse fragments; clear, wavy boundary.

BC - 55 to 85 cm; yellowish brown (10YR 5/4 m); sand; single grain; loose; very few roots; 5% coarse fragments.

* Soil is formed on coarse textured Gipsy till (Bayrock & Reimchen, 1974); included in Kinosis land system because of limited occurrence in the study area.

ANALYSIS OF SOIL AT SITE M78-11

Horizon	Particle Size Distribution (%)									pH	pH
	Sand	VCS	CS	MS	FS	VFS	Silt	Clay	Fine C	CaCl2	H2O
LF	-	-	-	-	-	-	-	-	-	3.4	3.9
Ae	72	1	7	34	24	7	26	2	-	3.7	4.1
Bfj	93	0.5	14	36	38	5	4	3	-	4.5	5.3
Bm	92	1	10	56	23	2	5	3	-	4.1	4.8
BC	80	1	8	27	34	11	16	4	-	4.6	5.3

Horizon	CaCO3 eq. (%)	Org. C (%)	Total N (%)	C/N	E.C. (mS/cm)	Sat. H2O (%)	Cations in Saturation Extract (me/l)			
							Na	K	Ca	Mg
LF	-	36.53	0.82	45	-	-	-	-	-	-
Ae	-	0.24	0.01	24	-	-	-	-	-	-
Bfj	-	0.06	0.01	6	-	-	-	-	-	-
Bm	-	0.08	0.01	8	-	-	-	-	-	-
BC	-	0.04	0.01	4	-	-	-	-	-	-

Hori.	TEC (me/100g)	Exchange Cations (me/100g)				Base Sat. (%)	Perm. Charge CEC (me/100g)				Base Sat. (%)
		Na	K	Ca	Mg		Al	Ca	Mg	Total	
LF	60.0	0.30	1.50	7.0	0.50	15	4.4	40.0	8.2	52.6	92
Ae	1.4	0.10	0.02	0.2	0.05	26	0.6	0.5	0.1	1.2	50
Bfj	1.3	0.01	0.02	0.2	0.05	22	0.1	0.3	0.1	0.5	80
Bm	2.5	0.01	0.03	0.2	0.05	12	0.6	0.5	0.1	1.2	50
BC	1.2	0.02	0.03	0.2	0.10	29	0.0	0.7	0.2	0.9	100

DESCRIPTION OF A PROFILE IN THE HEART SOIL GROUP - SITE M77-10

Soil Unit:	HRT4
Location:	NW32-93-10-W4
Classification:	Eluviated Eutric Brunisol
Landform:	
Genetic Material:	Eolian veneer overlying limestone rock; sandy
Surface Expression:	Ridged veneer; gentle slopes; moderate slopes on rock scarps
Site Features:	Upper slope position; south aspect; rapidly drained; high perviousness; non-stony
Vegetation:	Upland jack pine forest; jack pine, lichen, Labrador tea

Profile Description:

LFH - 3 to 0 cm; slightly to moderately decomposed needles and leaves; plentiful, fine and medium, horizontal roots; abrupt, wavy boundary.

Ae - 0 to 14 cm; light brownish gray (10YR 6.5/2 d; 10YR 4/2 m); loamy fine sand; weak medium platy; loose; few, fine and medium, and very few, coarse, oblique roots; clear, wavy boundary.

Bm1 - 14 to 40 cm; light yellowish brown (10YR 6/4 d; 10YR 4/4 m); loamy fine sand; very weak, fine subangular blocky; very soft; very few, fine and medium, oblique roots; gradual, smooth boundary.

Bm2 - 40 to 75 cm; light yellowish brown (10YR 6.5/4 d; 10YR 4/4 m); fine sand; very weak, medium, subangular blocky; very soft; very few roots; clear, wavy boundary.

Bt - 75 to 85 cm; dark yellowish brown (10YR 4/6 d; 10YR 3.5/4 d); fine sandy loam; moderate, medium, subangular blocky; friable; very few roots; abrupt, wavy boundary (lithic contact).

R - 85+ cm; consolidated limestone rock.

ANALYSIS OF SOIL AT SITE M77-10

Horizon	Particle Size Distribution (%)									pH $CaCl_2$	pH H_2O
	Sand	VCS	CS	MS	FS	VFS	Silt	Clay	Fine C		
LFH	-	-	-	-	-	-	-	-	-	3.9	4.4
Ae	82	0	tr	5	39	37	15	3	1	5.0	5.5
Bm1	86	tr	tr	3	46	37	11	3	2	5.2	6.1
Bm2	88	tr	2	16	39	31	8	4	1	5.9	6.7
Bt	65	tr	2	10	31	22	16	19	14	6.7	7.0
R	-	-	-	-	-	-	-	-	-	-	-

Horizon	$CaCO_3$ eq. (%)	Org. C (%)	Total N (%)	C/N	E.C. (mS/cm)	Sat. H_2O (%)	Cations in Saturation Extract (me/l)			
							Na	K	Ca	Mg
LFH	-	39.91	0.68	59	-	-	-	-	-	-
Ae	-	0.41	0.02	21	-	-	-	-	-	-
Bm1	-	0.17	0.01	17	-	-	-	-	-	-
Bm2	-	0.12	0.00	-	-	-	-	-	-	-
Bt	-	0.55	0.04	14	-	-	-	-	-	-
R	-	-	-	-	-	-	-	-	-	-

Hori.	TEC (me/100g)	Exchange Cations (me/100g)				Base Sat. (%)	Perm. Charge CEC (me/100g)				Base Sat. (%)
		Na	K	Ca	Mg		Al	Ca	Mg	Total	
LFH	-	-	-	-	-	-	-	-	-	-	-
Ae	2.0	0.0	0.1	1.6	0.2	93	-	-	-	-	-
Bm1	1.7	0.01	0.1	1.7	0.2	100	-	-	-	-	-
Bm2	1.6	0.02	0.04	2.1	0.3	100	-	-	-	-	-
Bt	12.4	0.1	0.3	17.6	1.0	100	-	-	-	-	-
R	-	-	-	-	-	-	-	-	-	-	-

DESCRIPTION OF A PROFILE IN THE HEART SOIL GROUP - SITE M78-1

Soil Unit:	HRT4
Location:	NW2-86-17-W4
Classification:	Eluviated Dystric Brunisol
Landform:	
Genetic Material:	Eolian; sandy
Surface Expression:	Undulating to hummocky; gentle slopes
Site Features:	Upper slope position; southeast aspect; rapidly drained; high perviousness; non-stony
Vegetation:	Upland jack pine forest; jack pine, bearberry, lichens

Profile Description:

LF - 4 to 0 cm; very dark brown (10YR 2/2 m); slightly to moderately decomposed needles, leaves and lichens; very few, horizontal, coarse and few, fine to medium, horizontal roots; clear, smooth boundary.

Ae - 0 to 10 cm; grayish brown (10YR 5/2 m); fine sand; single grain; loose; very few, coarse, horizontal and few, very fine to medium, horizontal roots; gradual, smooth boundary.

AB - 10 to 19 cm; yellowish brown (10YR 5/4 m); fine sand; single grain; loose; very few, very fine to coarse, horizontal roots; diffuse, smooth boundary.

Bm1 - 19 to 34 cm; yellowish brown (10YR 5/4 m); fine sand; single grain; loose, very few, fine to coarse, oblique roots; diffuse, smooth boundary.

Bm2 - 34 to 78 cm; yellowish brown (10YR 5/4 m); fine sand; single grain; loose; very few roots; diffuse, smooth boundary.

BC - 78 to 100 cm; olive brown (2.5Y 4/4 m); fine sand; single grain; loose; very few roots; diffuse, smooth boundary.

C - 100+ cm; dark grayish brown (2.5Y 4/2 m); fine sand; single grain, loose.

ANALYSIS OF SOIL AT SITE M78-1

Horizon	Particle Size Distribution (%)									pH	pH
	Sand	VCS	CS	MS	FS	VFS	Silt	Clay	Fine C	CaCl2	H2O
LF	-	-	-	-	-	-	-	-	-	3.9	4.5
Ae	86	-	-	3	73	11	12	2	-	4.2	5.2
AB	88	-	-	3	72	14	10	2	-	5.0	6.0
Bm1	90	-	-	2	73	15	7	3	-	5.1	6.7
Bm2	89	-	-	2	73	13	6	5	-	5.1	6.0
BC	91	-	-	2	72	16	4	5	-	5.1	6.0
C	92	-	-	2	78	12	5	3	-	5.7	6.5

Horizon	CaCO3 eq. (%)	Org. C (%)	Total N (%)	C/N	E.C. (mS/cm)	Sat. H2O (%)	Cations in Saturation Extract (me/l)			
							Na	K	Ca	Mg
LF	-	34.55	1.05	33	-	-	-	-	-	-
Ae	-	0.56	0.03	19	-	-	-	-	-	-
AB	-	0.26	0.02	13	-	-	-	-	-	-
Bm1	-	0.13	0.01	13	-	-	-	-	-	-
Bm2	-	0.16	0.01	16	-	-	-	-	-	-
BC	-	-	-	-	-	-	-	-	-	-
C	-	-	-	-	-	-	-	-	-	-

Hori.	TEC (me/100g)	Exchange Cations (me/100g)				Base Sat. (%)	Perm. Charge CEC (me/100g)				Base Sat. (%)
		Na	K	Ca	Mg		Al	Ca	Mg	Total	
LF	44.9	0.02	1.3	16.9	1.2	43	-	-	-	-	-
Ae	6.1	0.01	0.1	1.0	0.2	21	-	-	-	-	-
AB	5.9	0.01	0.2	1.5	0.3	34	-	-	-	-	-
Bm1	5.4	0.0	0.1	1.7	0.5	43	-	-	-	-	-
Bm2	7.5	0.03	0.2	2.7	0.9	51	-	-	-	-	-
BC	6.4	0.02	0.1	2.6	0.7	52	-	-	-	-	-
C	6.4	0.02	0.1	3.5	0.5	66	-	-	-	-	-

DESCRIPTION OF A PROFILE IN THE HEART SOIL GROUP - SITE M78-37

Soil Unit: HRT5

Location: NW1-89-15-W4

Classification: Eluviated Dystric Brunisol

Landform:

  Genetic Material: Eolian; sandy

  Surface Expression: Hummocky; gentle slopes

Site Features: Upper slope position; northeast aspect; rapidly drained; high perviousness

Vegetation: Upland mixed forest; jack pine, aspen, alder, blueberry, cowberry, bearberry, lichens, feathermosses, grasses

Profile Description:

LF - 4 to 0 cm; dark brown; moderately decomposed needles and leaves.

Ae - 0 to 14 cm; light brownish gray (10YR 6/2 m); sand; single grain; loose; clear, wavy boundary.

Bm - 14 to 34 cm; dark yellowish brown (10YR 4/5 m); sand; single grain; loose; gradual, smooth boundary.

BC - 34 to 58 cm; yellowish brown (10YR 5/5 m); sand; single grain; loose; gradual, smooth boundary.

C1 - 58 to 96 cm; brownish yellow (10YR 6/5 m); sand; single grain; loose; diffuse, smooth boundary.

C2 - 96 to 120 cm; light olive brown (2.5Y 5/3 m); sand; single grain; loose.

ANALYSIS OF SOIL AT SITE M78-37

Horizon	Particle Size Distribution (%)									pH	pH
	Sand	VCS	CS	MS	FS	VFS	Silt	Clay	Fine C	CaCl2	H2O
LF	-	-	-	-	-	-	-	-	-	4.4	4.6
Ae	88	-	-	6	63	21	10	2	-	4.5	5.1
Bm	88	-	-	5	64	18	4	8	-	5.2	6.0
Bc	91	-	-	6	65	19	2	7	-	5.2	6.1
C1	91	-	-	11	62	17	2	7	-	5.3	6.1
C2	91	-	-	5	65	22	2	7	-	5.3	6.0

Horizon	CaCO3 eq. (%)	Org. C (%)	Total N (%)	C/N	E.C. (mS/cm)	Sat. H2O (%)	Cations in Saturation Extract (me/l)			
							Na	K	Ca	Mg
LF	-	43.45	1.38	31	-	-	-	-	-	-
Ae	-	0.37	0.04	9	-	-	-	-	-	-
Bm	-	0.16	0.03	5	-	-	-	-	-	-
Bc	-	-	-	-	-	-	-	-	-	-
C1	-	-	-	-	-	-	-	-	-	-
C2	-	-	-	-	-	-	-	-	-	-

Hori.	TEC (me/100g)	Exchange Cations (me/100g)				Base Sat. (%)	Perm. Charge CEC (me/100g)				Base Sat. (%)
		Na	K	Ca	Mg		Al	Ca	Mg	Total	
LF	62.5	0.3	1.9	18.1	3.2	38	0.6	45.0	9.5	55.1	99
Ae	2.4	0.01	0.1	0.9	0.0	42	0.04	1.1	0.4	1.5	97
Bm	4.3	0.01	0.1	2.2	0.3	61	0.0	2.4	0.7	3.1	100
Bc	3.7	0.1	0.1	1.8	0.3	62	0.0	2.5	0.7	3.2	100
C1	3.1	0.04	0.1	2.0	0.2	75	0.0	2.4	0.6	3.0	100
C2	3.4	0.02	0.1	2.4	0.2	77	0.03	2.7	0.7	3.4	99

DESCRIPTION OF A PROFILE IN THE HEART SOIL GROUP - SITE M79-5

Soil Unit: HRT6

Location: 22-105-6-W4

Classification: Eluviated Dystric Brunisol

Landform:

Genetic Material: Eolian; sandy

Surface Expression: Hummocky; stabilized dunes; gentle slopes

Site Features: Mid slope position; southwest aspect; very rapidly drained; high perviousness; many pitted areas caused by wind erosion

Vegetation: Upland jack pine forest; jack pine, lichens

Profile Description:

LF - 2 to 0 cm; slightly to moderately decomposed lichens and needles, abrupt, smooth boundary.

Ae1 - 0 to 4 cm; dark grayish brown (10YR 4.5/2 m); sand; single grain; loose; very few, fine and medium roots; clear, wavy boundary.

Ae2 - 4 to 15 cm; grayish brown (10YR 5/2 m); sand; single grain; loose; very few, fine and medium roots, and locally plentiful, horizontal coarse roots; brownish blotches near top of horizon; gradual, smooth boundary.

Bm - 15 to 32 cm; brownish yellow (10YR 6/6 m); sand; single grain; loose; very few roots; stratified; gradual, smooth boundary.

BC - 32 to 48 cm; very pale brown (10YR 7/4 m); sand; single grain; loose; stratified; almost no roots; diffuse, smooth boundary.

C - 48 to 80 cm; very pale brown (10YR 7/4 m); sand; single grain; loose; stratified; no roots.

ANALYSIS OF SOIL AT SITE 79-5

Horizon	Particle Size Distribution (%) Sand	VCS	CS	MS	FS	VFS	Silt	Clay	Fine C	pH CaCl2	pH H2O
LF	-	-	-	-	-	-	-	-	-	-	-
Ae1	98	-	11	51	33	3	2	-	-	4.1	4.6
Ae2	98	-	12	50	33	3	2	-	-	4.6	5.1
Bm	98	-	4	45	45	4	2	-	-	4.7	5.5
BC	99	-	2	40	49	7	1	-	-	5.1	5.6
C	100	-	7	54	35	3	-	-	-	5.8	5.3

Horizon	CaCO3 eq. (%)	Org. C (%)	Total N (%)	C/N	E.C. (mS/cm)	Sat. H2O (%)	Cations in Saturation Extract (me/l) Na	K	Ca	Mg
LF	-	-	-	-	-	-	-	-	-	-
Ae1	-	0.51	0.03	17	-	-	-	-	-	-
Ae2	-	0.14	0.01	14	-	-	-	-	-	-
Bm	-	0.09	0.01	9	-	-	-	-	-	-
BC	-	-	-	-	-	-	-	-	-	-
C	-	-	-	-	-	-	-	-	-	-

Hori.	TEC (me/100g)	Exchange Cations (me/100g) Na	K	Ca	Mg	Base Sat. (%)	Perm. Charge CEC (me/100g) Al	Ca	Mg	Total	Base Sat. (%)
LF	-	-	-	-	-	-	-	-	-	-	-
Ae1	1.8	0.1	0.01	0.3	0.0	22	-	-	-	-	-
Ae2	0.6	0.01	0.01	0.1	0.0	18	-	-	-	-	-
Bm	0.4	0.04	0.0	0.1	0.0	25	-	-	-	-	-
BC	0.2	0.0	0.0	0.03	0.0	15	-	-	-	-	-
C	0.2	0.0	0.0	0.03	0.0	15	-	-	-	-	-

DESCRIPTION OF A PROFILE IN THE HORSE RIVER SOIL GROUP - SITE M77-8

Soil Unit:	Sampled in DOV1 unit
Location:	NW29-96-12-W4
Classification:	Solonetzic Gray Luvisol
Landform:	
Genetic Material:	Morainal; fine-loamy
Surface Expression:	Undulating; very gentle slopes
Site Features:	Upper slope position; north aspect; moderately well drained; medium previousness; slightly stony
Vegetation:	Upland aspen forest; aspen, white spruce, rose, bearberry

Profile Description:

LFH - 5 to 0 cm; slightly decomposed leaves in L layer; leaves permeated by fungal hyphae in F layer; abundant, very fine to coarse, horizontal and oblique roots; clear, wavy boundary.

Ae - 0 to 7 cm; light gray (10YR 7/2 d; 10YR 4.5/3 m); silt loam; moderate, medium platy; very friable; plentiful, very fine and fine, few medium and coarse, oblique roots; less than 10% coarse fragments; gradual, wavy boundary.

AB - 7 to 14 cm; pale brown (10YR 6/3 d; 10YR 4/3 d); loam; weak, medium platy to weak, medium subangular blocky; friable; plentiful, very fine to medium, oblique roots; 10 to 20% coarse fragments; gradual, wavy boundary.

Btnj1 - 14 to 34 cm; brown (10YR 4.5/3 d; 10YR 3/3 m); clay; very weak, medium columnar breaking to strong, medium subangular blocky; very firm; few, very fine to medium, vertical roots; less than 10% coarse fragments; gradual, wavy boundary.

Btnj2 - 34 to 48 cm; dark yellowish brown (10YR 4.5/4 d; 10YR 3/3 d); clay loam; moderate, fine subangular blocky; firm; few, very fine and fine, vertical roots; less than 10% coarse fragments; gradual smooth boundary.

BCk - 48 to 80 cm; pale brown (10YR 5.5/3 d; 10YR 3/3 m); loam; pinkish gray ped faces; moderate, fine subangular blocky; firm; very few, very fine and fine, vertical roots; less than 10% coarse fragments; gradual, smooth boundary.

Ck - 80 to 120 cm; brown (10YR 5/3 d; 10YR 3/3 m); pinkish gray ped faces; clay loam; weak, fine subangular blocky; firm; very few, very fine and fine, vertical roots; less than 10% coarse fragments.

ANALYSIS OF SOIL AT SITE M77-8

Horizon	Particle Size Distribution (%)									pH CaCl2	pH H2O
	Sand	VCS	CS	MS	FS	VFS	Silt	Clay	Fine C		
LFH	-	-	-	-	-	-	-	-	-	5.1	5.4
Ae	19	tr	2	3	5	8	70	11	-	4.3	5.4
AB	28	1	2	6	9	10	47	25	9	4.6	5.2
Btnj1	22	1	2	5	7	7	30	48	28	5.8	5.9
Btnj2	30	1	4	7	9	9	35	35	20	7.3	7.2
BCk	47	tr	4	12	15	16	39	14	9	7.7	7.8
Ck	31	1	2	5	10	13	37	32	19	7.7	7.9

Horizon	CaCO3 eq. (%)	Org. C (%)	Total N (%)	C/N	E.C. (mS/cm)	Sat. H2O (%)	Cations in Saturation Extract (me/l)			
							Na	K	Ca	Mg
LFH	-	14.52	0.85	17	-	-	-	-	-	-
Ae	-	0.73	0.04	18	0.1	40	-	-	-	-
AB	-	0.67	0.04	17	0.4	40	-	-	-	-
Btnj1	-	0.95	0.05	19	1.4	57	-	-	-	-
Btnj2	-	1.31	0.07	19	1.5	48	-	-	-	-
BCk	8.9	-	-	-	1.4	40	14.1	0.03	1.5	1.0
Ck	6.1	-	-	-	1.4	69	14.1	0.1	1.4	1.2

Hori.	TEC (me/100g)	Exchange Cations (me/100g)				Base Sat. (%)	Perm. Charge CEC (me/100g)				Base Sat. (%)
		Na	K	Ca	Mg		Al	Ca	Mg	Total	
LFH	52.7	0.9	3.7	28.8	6.7	76	0.0	45.0	9.0	54.0	100
Ae	6.2	0.2	0.2	1.4	0.8	42	1.4	1.8	0.9	4.1	66
AB	14.2	2.5	0.3	4.1	3.9	76	1.6	4.3	1.0	6.9	77
Btnj1	28.7	6.1	0.4	11.8	10.4	100	0.0	16.7	3.4	20.1	100
Btnj2	22.8	6.2	0.3	25.6	9.6	100	0.0	16.7	2.6	19.3	100
BCk	7.6	-	-	-	-	-	-	-	-	-	-
Ck	13.1	-	-	-	-	-	-	-	-	-	-

DESCRIPTION OF A PROFILE IN THE HORSE RIVER SOIL GROUP - SITE M77-18

Soil Unit:	HRR1
Location:	NW8-90-12-W4
Classification:	Orthic Gray Luvisol
Landform:	
Genetic Material:	Morainal; fine-loamy
Surface Expression:	Undulating; very gentle slopes
Site Features:	Upper slope position; southwest aspect; moderately well drained; medium perviousness; slightly stony
Vegetation:	Upland aspen forest; aspen, white spruce, alder, feathermoss

Profile Description:

LFH - 5 to 0 cm; slightly to moderately decomposed leaves and mosses; abundant, fungal hyphae; abundant, very fine to medium, and few, coarse, horizontal roots; clear, wavy boundary.

Ae1 - 0 to 5 cm; pale brown (10YR 6.5/3 d; 10YR 4/3 m); silt loam; weak, medium platy; soft; plentiful, very fine to medium and few, coarse, horizontal roots; less than 5% coarse fragments; clear, wavy boundary.

Ae2 - 5 to 20 cm; light brownish gray (10YR 6.5/2 d; 10YR 4/3 m); silt loam; moderate, medium platy; soft; few, very fine to medium, oblique roots; less than 5% coarse fragments; clear, smooth boundary.

AB - 20 to 28 cm; pale brown (10YR 6/3 d; 10YR 4/4 m); clay loam; strong, medium subangular blocky; firm; few, very fine to medium, oblique roots; 5 to 10% coarse fragments; clear, smooth boundary.

Bt - 28 to 60 cm; brown (10YR 5/3.5 d; 10YR 3/4 m); clay loam; weak, medium prismatic breaking to strong, medium subangular blocky; firm; very few, very fine and fine, vertical roots; 5 to 10% coarse fragments; gradual, smooth boundary.

BC - 60 to 100 cm; brown (10YR 5/3.5 d; 10YR 3/3 m); loam; massive; firm; very few roots; 5 to 10% coarse fragments; gradual, smooth boundary.

Ck - 100+ cm; dark yellowish brown (10YR 4.5/4 d; 10YR 3/3 m); loam; massive; firm; very few roots; 5 to 10% coarse fragments.

ANALYSIS OF SOIL AT SITE M77-18

Horizon	Particle Size Distribution (%)									pH CaCl2	pH H2O
	Sand	VCS	CS	MS	FS	VFS	Silt	Clay	Fine C		
LFH	-	-	-	-	-	-	-	-	-	5.5	5.7
Ae1	22	tr	1	4	7	9	61	17	6	4.7	5.4
Ae2	18	tr	1	4	6	6	75	7	4	4.4	5.1
AB	29	tr	2	5	11	11	38	33	16	4.7	5.1
Bt	31	tr	2	6	11	12	34	35	20	4.6	5.0
BC	36	tr	2	6	14	13	38	26	16	5.4	6.1
Ck	38	tr	2	6	14	15	36	26	4	6.4	6.6

Horizon	CaCO3 eq. (%)	Org. C (%)	Total N (%)	C/N	E.C. (mS/ cm)	Sat. H2O (%)	Cations in Saturation Extract (me/l)			
							Na	K	Ca	Mg
LFH	-	44.5	1.78	25	-	-	-	-	-	-
Ae1	-	0.50	0.03	17	0.1	50	-	-	-	-
Ae2	-	0.83	0.04	21	0.1	50	-	-	-	-
AB	-	0.59	0.03	20	0.1	50	-	-	-	-
Bt	-	0.67	0.03	22	0.1	44	-	-	-	-
BC	-	-	-	-	0.1	45	-	-	-	-
Ck	-	-	-	-	0.4	44	0.78	0.04	3.11	1.66

Hori.	TEC (me/ 100g)	Exchange Cations (me/100g)				Base Sat. (%)	Perm. Charge CEC (me/100g)				Base Sat. (%)
		Na	K	Ca	Mg		Al	Ca	Mg	Total	
LFH	90.8	0.6	5.9	68.9	8.2	92	4.4	90.0	15.6	110.0	96
Ae1	6.6	0.04	0.1	2.5	1.3	60	0.5	3.5	3.7	7.7	94
Ae2	5.4	0.02	0.1	1.6	0.8	47	1.1	2.5	1.1	4.7	77
AB	13.5	0.7	0.3	6.0	4.1	82	0.5	9.5	8.1	18.1	97
Bt	20.9	0.1	0.3	10.1	5.1	75	0.7	10.8	3.9	15.4	95
BC	15.6	0.1	0.3	9.8	4.9	97	0.2	12.0	14.3	26.5	99
Ck	14.4	0.1	0.2	11.9	5.3	100	0.2	13.5	13.0	26.7	99

DESCRIPTION OF A PROFILE IN THE HORSE RIVER SOIL GROUP - SITE M77-27

Soil Unit: Sampled in FIR3 unit

Location: SW11-97-10-W4

Classification: Orthic Gray Luvisol

Landform:

  Genetic Material: Morainal inclusions in glaciofluvial ice-contact deposits; fine-loamy

  Surface Expression: Hummocky; locally undulating; very gentle to moderate slopes

Site Features: Mid slope position; west aspect; moderately well drained; medium perviousness; moderately stony

Vegetation: Upland aspen forest; aspen

Profile Description:

LFH - 10 to 0 cm; slightly to moderately decomposed leaves; permeated with fungal hyphae; plentiful, very fine to coarse, horizontal roots; clear, wavy boundary.

Ae1 - 0 to 10 cm; light brownish gray (10YR 6/2 d; 10YR 4/2 m); fine sandy loam; weak, medium platy; loose; few, very fine to coarse, oblique roots; 10 to 15% coarse fragments; gradual smooth boundary.

Ae2 - 10 to 21 cm; pale brown (10YR 6/3 d; 10YR 4/3 m); fine sandy loam; weak, medium platy; very friable; few, very fine to coarse, oblique roots; 10 to 15% coarse fragments; smooth, wavy boundary.

Bt - 21 to 65 cm; pale brown (10YR 6/3 d; 10YR 4/3 m); clay loam; strong, medium subangular blocky; very firm; very few, very fine to coarse, oblique roots; 10 to 15% coarse fragments; gradual, smooth boundary.

BC - 65 to 85 cm; brown (10YR 5/3 d; 10YR 3.5/3 m); clay loam; massive; firm; very few roots; 10 to 15% coarse fragments; gradual, smooth boundary.

Ck - 85 to 110 cm; brown (10YR 5/3 d; 10YR 3.5/3 m); clay loam; massive; firm; very few roots; 10 to 15% coarse fragments.

ANALYSIS OF SOIL AT SITE M77-27

Horizon	Particle Size Distribution (%) Sand	VCS	CS	MS	FS	VFS	Silt	Clay	Fine C	pH CaCl2	pH H2O
LFH	-	-	-	-	-	-	-	-	-	6.0	6.3
Ae1	67	tr	tr	5	32	29	30	3	1	5.7	6.5
Ae2	73	0	1	5	33	34	23	4	2	5.6	6.6
Bt	35	tr	1	3	11	20	32	33	13	5.2	6.5
BC	35	tr	1	4	12	18	34	31	17	6.2	6.6
Ck	36	tr	1	4	13	17	35	29	14	6.9	7.6

Horizon	CaCO3 eq. (%)	Org. C (%)	Total N (%)	C/N	E.C. (mS/cm)	Sat. H2O (%)	Cations in Saturation Extract (me/l) Na	K	Ca	Mg
LFH	-	47.34	1.80	26	-	-	-	-	-	-
Ae1	-	0.40	0.03	13	-	-	-	-	-	-
Ae2	-	0.23	0.02	12	-	-	-	-	-	-
Bt	-	0.53	0.03	18	-	-	-	-	-	-
BC	-	-	-	-	-	-	-	-	-	-
Ck	2.8	-	-	-	-	-	-	-	-	-

Hori.	TEC (me/100g)	Exchange Cations (me/100g) Na	K	Ca	Mg	Base Sat. (%)	Perm. Charge CEC (me/100g) Al	Ca	Mg	Total	Base Sat. (%)
LFH	98.2	0.1	5.1	83.3	9.0	-	-	-	-	-	-
Ae1	2.5	0.0	0.1	2.3	0.4	100	-	-	-	-	-
Ae2	2.3	0.01	0.2	2.0	0.4	100	-	-	-	-	-
Bt	10.0	0.02	0.3	8.0	2.2	100	-	-	-	-	-
BC	11.7	0.1	0.3	7.6	2.8	100	-	-	-	-	-
Ck	-	-	-	-	-	-	-	-	-	-	-

DESCRIPTION OF A PROFILE IN THE HORSE RIVER SOIL GROUP - SITE M77-42

Soil Unit: Sampled in RUT1 unit

Location: SE25-91-10-W4

Classification: Orthic Gray Luvisol

Landform:

- Genetic Material: Morainal; fine-loamy
- Surface Expression: Undulating; very gentle slopes

Site Features: Mid slope position; east aspect; moderately well drained; medium perviousness; slightly stony

Vegetation: Upland aspen forest; aspen, hazelnut, cranberry

Profile Description:

LFH - 5 to 0 cm; very dark brown (10YR 2/2); slightly to moderately well decomposed organic matter; abundant, fine and medium, horizontal roots; abrupt, smooth boundary.

Ae - 0 to 8 cm; light brownish gray (10YR 6/2); fine sandy loam; weak medium platy; friable; abundant, fine and medium, horizontal roots; 10% coarse fragments; abrupt, wavy boundary.

AB - 8 to 20 cm; brown (10YR 5/3); loam; weak, medium subangular blocky; firm; plentiful, fine and medium, oblique roots; 10% coarse fragments; gradual, wavy boundary.

Bt - 20 to 50 cm; dark brown (10YR 4/3); clay loam; moderate, medium subangular blocky; firm; very few, fine and medium, oblique roots; 10% coarse fragments; gradual, wavy boundary.

BC - 50 to 80 cm; dark yellowish brown (10YR 3/4); fine sandy loam; very few roots; 10% coarse fragments, gradual, wavy boundary.

Ck - 80+ cm; dark yellowish brown (10YR 4/4); mixed with gray (10YR 7/2); fine sandy loam; massive; friable; 10 to 15% coarse fragments.

Ck275 - At 275 cm; dark yellowish brown (10YR 4/4); fine sandy loam; massive; friable; 10 to 15% coarse fragments.

ANALYSIS OF SOIL AT SITE M77-42

Horizon	Particle Size Distribution (%)									pH	pH
	Sand	VCS	CS	MS	FS	VFS	Silt	Clay	Fine C	CaCl2	H2O
LFH	-	-	-	-	-	-	-	-	-	-	-
Ae	57	2	7	16	22	10	39	4	2	-	5.7
AB	54	1	5	15	24	9	31	15	6	-	5.9
Bt	47	1	4	13	21	8	28	25	16	-	5.9
BC	65	1	6	13	30	15	17	18	12	-	6.1
Ck	56	1	3	14	28	10	25	19	9	-	8.2
Ck275	50	-	-	-	-	-	27	23	10	-	8.2

Horizon	CaCO3 eq. (%)	Org. C (%)	Total N (%)	C/N	E.C. (mS/cm)	Sat. H2O (%)	Cations in Saturation Extract (me/l)			
							Na	K	Ca	Mg
LFH	-	-	-	-	-	-	-	-	-	-
Ae	-	0.98	0.036	27	0.4	21	0.2	0.1	4.3	2.5
AB	-	0.41	0.035	12	0.3	21	0.2	0.1	3.7	2.0
Bt	-	0.67	0.020	34	0.3	32	0.2	0.05	2.6	1.9
BC	-	0.40	0.020	20	-	-	-	-	-	-
Ck	8.3	-	-	-	0.6	30	0.5	0.2	5.1	3.7
Ck275	8.1	-	-	-	-	-	-	-	-	-

Hori.	TEC (me/100g)	Exchange Cations (me/100g)				Base Sat. (%)	Perm. Charge CEC (me/100g)				Base Sat. (%)
		Na	K	Ca	Mg		Al	Ca	Mg	Total	
LFH	-	-	-	-	-	-	-	-	-	-	-
Ae	3.9	0.04	0.1	2.7	0.5	85	-	-	-	-	-
AB	-	-	-	-	-	-	-	-	-	-	-
Bt	12.5	0.04	0.2	8.3	2.7	90	-	-	-	-	-
BC	11.8	0.1	0.3	8.3	1.5	86	-	-	-	-	-
Ck	5.2	0.1	0.2	33.5	0.2	100	-	-	-	-	-
Ck275	7.2	0.05	0.1	21.2	2.3	100	-	-	-	-	-

DESCRIPTION OF A PROFILE IN THE HORSE RIVER SOIL GROUP - SITE M78-5

Soil Unit: HRR1

Location: NW12-87-7-4

Classification: Orthic Gray Luvisol

Landform:

Genetic Material: Morainal; fine-loamy

Surface Expression: Undulating; very gentle slopes

Site Features: Midslope position; north aspect; well drained; medium perviousness; slightly stony

Vegetation: Upland jack pine forest; jack pine, black spruce, Labrador tea, cowberry, lichens

Profile Description:

LF - 3 to 0 cm; dark brown; slightly to moderately decomposed needles and leaves.

Ae1 - 0 to 5 cm; light gray (10YR 7.5/1 m); silty loam; strong, medium platy; very friable; 15% coarse fragments; clear, wavy boundary.

Ae2 - 5 to 11 cm; light brownish gray (10YR 6/3 m); clay loam; moderate, medium platy; friable; 15% coarse fragments; clear, wavy boundary.

AB - 11 to 18 cm; light olive brown (10YR 5/4 m); clay loam; weak, medium subangular blocky; firm; 15% coarse fragments; gradual, smooth boundary.

Bt - 18 to 46 cm; dark grayish brown (10YR 4/3 m); clay loam; moderate, coarse subangular blocky; firm; 15% coarse fragments; gradual, smooth boundary.

BC - 46 to 60 cm; olive brown (10YR 3/3 m); clay loam; moderate, medium subangular blocky; firm; 15% coarse fragments; diffuse, smooth boundary.

Ck1 - 60 to 80 cm; olive brown (10YR 3/3 m): clay loam; massive; firm; weakly calcareous; gradual, smooth boundary.

Ck2 - 80 to 120 cm; dark grayish brown (2.5Y 4/2 m); clay loam; moderately calcareous.

ANALYSIS OF SOIL AT SITE M78-5

Horizon	Particle Size Distribution (%) Sand	VCS	CS	MS	FS	VFS	Silt	Clay	Fine C	pH CaCl2	pH H2O
LFH	-	-	-	-	-	-	-	-	-	3.6	4.2
Ae1	40	0.4	4	12	16	7	54	6	-	3.7	4.5
Ae2	41	-	3	13	21	10	31	28	-	4.3	5.0
AB	37	0.2	3	12	18	8	28	35	-	4.3	4.8
Bt	35	0.5	3	11	15	6	32	33	-	4.5	4.9
BC	37	0.5	3	10	15	7	32	31	-	4.9	5.2
Ck1	35	0.2	4	10	16	7	34	31	-	7.0	7.6
Ck2	-	-	-	-	-	-	-	-	-	7.5	7.8

Horizon	CaCO3 eq. (%)	Org. C (%)	Total N (%)	C/N	E.C. (mS/cm)	Sat. H2O (%)	Cations in Saturation Extract (me/l) Na	K	Ca	Mg
LFH	-	25.28	0.61	41	-	-	-	-	-	-
Ae1	-	0.72	0.04	18	-	-	-	-	-	-
Ae2	-	0.49	0.03	16	-	-	-	-	-	-
AB	-	0.42	0.03	14	-	-	-	-	-	-
Bt	-	0.50	0.03	17	-	-	-	-	-	-
BC	-	0.49	0.03	16	-	-	-	-	-	-
Ck1	2.1	-	-	-	-	-	-	-	-	-
Ck2	9.2	-	-	-	-	-	-	-	-	-

Hori.	TEC (me/100g)	Exchange Cations (me/100g) Na	K	Ca	Mg	Base Sat. (%)	Perm. Charge CEC (me/100g) Al	Ca	Mg	Total	Base Sat. (%)
LFH	-	-	-	-	-	-	-	-	-	-	-
Ae1	8.8	0.1	0.1	0.9	0.2	13	-	-	-	-	-
Ae2	12.3	0.01	0.1	1.5	0.7	19	-	-	-	-	-
AB	20.6	0.04	0.2	3.3	2.2	28	-	-	-	-	-
Bt	28.9	0.1	0.2	5.5	3.7	33	-	-	-	-	-
BC	25.1	0.1	0.2	6.2	3.8	41	-	-	-	-	-
Ck1	12.0	-	-	-	-	-	-	-	-	-	-
Ck2	11.0	-	-	-	-	-	-	-	-	-	-

DESCRIPTION OF A PROFILE IN THE HORSE RIVER SOIL GROUP - SITE M78-33

Soil Unit: HRR1

Location: NW18-95-15-W4

Classification: Orthic Gray Luvisol (Horse River series)

Landform:

Genetic Material: Morainal; fine-loamy

Surface Expression: Hummocky; gentle and moderate slopes

Site Features: Upper slope position, near crest; west aspect; moderately well drained; medium perviousness.

Vegetation: Upland aspen forest; aspen, white spruce, cranberry, dense low shrub and herb ground cover

Profile Description:

LF - 8 to 0 cm; dark brown; slightly to moderately decomposed leaves and needles.

Ae1 - 0 to 6 cm (2 to 8 cm thickness range); grayish brown (10YR 5/2 m); silt; moderate, medium platy; friable; 5% coarse fragments; clear, wavy boundary, with tonguing into Ae2.

Ae2 - 6 to 14 cm; brown (10YR 5.5/3 m); silt loam; strong, fine platy; friable; 5% coarse fragments; clear, wavy boundary.

AB - 14 to 19 cm; brown (7.5YR 4.5/4 m); silty clay loam; moderate fine, subangular blocky; slightly sticky and firm; 5 to 10% coarse fragments; gradual, wavy boundary.

Bt1 - 19 to 36 cm; dark brown (7.5YR 4/4 m); clay loam; strong, medium subangular blocky; firm; 5 to 10% coarse fragments; gradual smooth boundary.

Bt2 - 36 to 49 cm; dark brown (10YR 4/3 m); clay loam; strong, medium, subangular blocky; firm; 5 to 10% coarse fragments; gradual, smooth boundary.

BC - 49 to 72 cm; dark grayish brown (10YR 4/2 m); clay loam; stong, fine, subangular blocky; 5 to 10% coarse fragments; gradual, smooth boundary.

Ck - 72+ cm; very dark grayish brown (2.5Y 3/2 m); clay loam; massive; firm; 5 to 10% coarse fragments.

ANALYSIS OF SOIL AT SITE M78-33

Horizon	Particle Size Distribution (%)									pH $CaCl_2$	pH H_2O
	Sand	VCS	CS	MS	FS	VFS	Silt	Clay	Fine C		
LF	-	-	-	-	-	-	-	-	-	5.6	6.1
Ae1	4	-	-	-	-	-	88	8	-	4.7	5.3
Ae2	4	-	-	-	-	-	81	15	-	5.5	6.0
AB	15	-	0.7	2	6	6	53	32	-	4.6	5.0
Bt1	25	-	1	4	11	10	36	39	-	4.2	4.8
Bt2	27	-	2	5	11	9	34	39	-	4.3	4.6
BC	29	-	2	5	13	10	37	34	-	4.6	4.9
Ck	23	0.5	1	3	8	10	44	33	-	7.1	7.3

Horizon	$CaCO_3$ eq. (%)	Org. C (%)	Total N (%)	C/N	E.C. (mS/cm)	Sat. H_2O (%)	Cations in Saturation Extract (me/l)			
							Na	K	Ca	Mg
LFH	-	27.29	1.55	18	-	-	-	-	-	-
Ae1	-	1.62	0.12	14	-	-	-	-	-	-
Ae2	-	0.52	0.04	13	-	-	-	-	-	-
AB	-	0.66	0.07	9	-	-	-	-	-	-
Bt1	-	0.59	0.06	10	-	-	-	-	-	-
Bt2	-	0.60	0.06	10	-	-	-	-	-	-
BC	-	-	-	-	-	-	-	-	-	-
Ck	2.3	-	-	-	-	-	-	-	-	-

Hori.	TEC (me/100g)	Exchange Cations (me/100g)				Base Sat. (%)	Perm. Charge CEC (me/100g)				Base Sat. (%)
		Na	K	Ca	Mg		Al	Ca	Mg	Total	
LF	65.5	0.1	4.1	48.5	5.8	89	0.0	70.0	14.8	84.8	100
Ae1	9.2	0.1	0.1	5.5	0.7	69	0.1	6.7	1.3	8.1	99
Ae2	6.5	0.01	0.2	4.2	1.0	83	0.1	4.9	0.1	5.1	99
AB	16.2	0.1	0.2	7.1	3.9	70	0.7	9.8	0.5	11.0	94
Bt1	23.9	0.1	0.4	8.6	7.4	69	2.0	13.8	0.9	16.7	88
Bt2	22.7	0.1	0.5	9.2	7.7	77	0.9	10.8	0.7	12.4	93
BC	23.9	0.1	0.3	9.5	7.9	74	-	-	-	-	-
Ck	20.3	0.1	0.3	14.8	9.7	123	0.0	12.1	0.6	12.7	100

DESCRIPTION OF A PROFILE IN THE HORSE RIVER SOIL GROUP - SITE M78-36

Soil Unit: HRR1

Location: NE3-91-18-W4

Classification: Orthic Gray Luvisol (Horse River series)

Landform:

- Genetic Material: Morainal; fine-loamy
- Surface Expression: Undulating; gentle slopes

Site Features: Upper slope position; south aspect; well-drained; medium perviousness

Vegetation: Upland coniferous forest; white spruce, jack pine, Labrador tea, cowberry, feathermosses, lichens

Profile Description:

LF - 8 to 0 cm; brown; slightly to moderately decomposed leaves, needles and mosses; plentiful roots.

Ae - 0 to 8 cm; gray (10YR 5.5/1 m); silt loam; strong, fine platy; very friable; 10 to 15% coarse fragments; gradual, wavy boundary.

AB - 8 to 14 cm; brown (10YR 5/3 m); silt loam; moderate, medium, subangular blocky; 10 to 15% coarse fragments; gradual, wavy boundary.

Bt1 - 14 to 38 cm; brown to dark brown (10YR 4/3 m); silty clay loam; sticky; 20 to 30% coarse fragments; gradual, smooth boundary.

Bt2 - 38 to 48 cm; dark yellowish brown (10YR 4/3.5 m); silty clay loam; strong, fine, subangular blocky; sticky; <10% coarse fragments; clear, smooth boundary.

BCk - 48 to 54 cm; very dark grayish brown (10YR 3/2 m); loam; weak, fine, subangular blocky; sticky; <10% coarse fragments; clear smooth boundary.

Ck - 54 to 110 cm; dark grayish brown (2.5Y 4/2 m); loam; massive, sticky; <10% coarse fragments.

ANALYSIS OF SOIL AT SITE M78-36

Horizon	Particle Size Distribution (%)									pH CaCl2	pH H2O
	Sand	VCS	CS	MS	FS	VFS	Silt	Clay	Fine C		
LF	-	-	-	-	-	-	-	-	-	3.6	4.0
Ae	25	0.6	3	5	9	6	68	7	-	4.0	4.5
AB	23	0.4	1	4	10	7	59	18	-	4.7	5.3
Bt1	16	-	1	4	7	3	47	37	-	5.0	5.2
Bt2	9	-	1	2	4	2	54	37	-	5.9	6.2
BCk	29	-	3	6	13	7	46	25	-	7.5	7.8
Ck	37	0.9	4	8	15	10	41	22	-	7.7	8.0

Horizon	CaCO3 eq. (%)	Org. C (%)	Total N (%)	C/N	E.C. (mS/cm)	Sat. H2O (%)	Cations in Saturation Extract (me/l)			
							Na	K	Ca	Mg
LF	-	34.85	1.28	27	-	-	-	-	-	-
Ae	-	0.79	0.05	16	-	-	-	-	-	-
AB	-	0.49	0.04	12	-	-	-	-	-	-
Bt1	-	0.71	0.06	12	-	-	-	-	-	-
Bt2	-	0.75	0.06	12	-	-	-	-	-	-
BCk	5.6	-	-	-	-	-	-	-	-	-
Ck	10.1	-	-	-	-	-	-	-	-	-

Hori.	TEC (me/100g)	Exchange Cations (me/100g)				Base Sat. (%)	Perm. Charge CEC (me/100g)				Base Sat. (%)
		Na	K	Ca	Mg		Al	Ca	Mg	Total	
LF	74.3	0.1	3.3	10.2	1.5	20	-	-	-	-	-
Ae	6.8	0.02	0.1	1.3	0.2	24	-	-	-	-	-
AB	8.9	0.1	0.2	3.6	1.7	63	-	-	-	-	-
Bt1	18.6	0.1	0.3	9.9	6.7	91	-	-	-	-	-
Bt2	20.9	0.1	0.3	10.1	8.2	89	-	-	-	-	-
BCk	16.5	-	-	-	-	-	-	-	-	-	-
Ck	11.4	-	-	-	-	-	-	-	-	-	-

DESCRIPTION OF A PROFILE IN THE HORSE RIVER SOIL GROUP - SITE M78-39

Soil Unit: HRR1

Location: SW2-88-16-W4

Classification: Orthic Gray Luvisol (Horse River series)

Landform:

- Genetic Material: Morainal; fine-loamy
- Surface Expression: Undulating to hummocky; gentle slopes.

Site Features: Upper slope position; southeast aspect; moderately well drained; medium perviousness; slightly stony

Vegetation: Upland mixed forest; aspen, white spruce, rose, bunchberry

Profile Description:

LF - 8 to 0 cm; dark brown; slightly to moderately decomposed leaves and needles.

Ae1 - 0 to 7 cm; grayish brown (10YR 5/2 m); silt loam; strong, fine platy; slightly sticky; 10% coarse fragments; clear, wavy boundary.

Ae2 - 7 to 16 cm; brown to yellowish brown (10YR 5/3.5 m); silt loam; strong, medium platy; 10% coarse fragments; gradual, smooth boundary.

AB - 16 to 22 cm; brown (10YR 4/3 m); loam; strong, medium and coarse platy; sticky; 10% coarse fragments; clear, smooth boundary.

Bt1 - 22 to 40 cm; brown (10YR 4/3 m); loam; moderate, medium, subangular blocky; sticky; 10% coarse fragments; gradual, smooth boundary.

Bt2 - 40 to 60 cm; brown (10YR 4/3 m); loam; weak, coarse prismatic, breaking to moderate, medium subangular blocky; sticky; 10% coarse fragments; clear, smooth boundary.

BC - 60 to 82 cm; brown (10YR 5/3 m); loam; weak coarse prismatic, breaking to strong, fine, subangular blocky; sticky; 10% coarse fragments; gradual, smooth boundary.

Ck - 82 to 110 cm; olive brown (2.5Y 3.5/3 m); loam; massive; sticky; 10% coarse fragments.

ANALYSIS OF SOIL AT SITE M78-39

Horizon	Particle Size Distribution (%) Sand	VCS	CS	MS	FS	VFS	Silt	Clay	Fine C	pH CaCl2	pH H2O
LF	-	-	-	-	-	-	-	-	-	6.3	6.5
Ae1	17	-	1	3	6	7	78	5	-	5.2	5.8
Ae2	16	-	1	3	4	8	73	11	-	5.7	6.2
AB	48	2	6	10	19	10	40	12	-	5.3	5.8
Bt1	42	tr	3	8	17	13	35	23	-	5.3	5.7
Bt2	45	tr	4	11	19	11	32	23	-	5.0	5.4
BC	44	tr	4	11	18	11	33	23	-	5.4	5.7
Ck	47	-	4	11	19	13	34	19	-	7.4	7.8

Horizon	CaCO3 eq. (%)	Org. C (%)	Total N (%)	C/N	E.C. (mS/cm)	Sat. H2O (%)	Cations in Saturation Extract (me/l) Na	K	Ca	Mg
LF	-	40.18	2.54	16	-	-	-	-	-	-
Ae1	-	0.84	0.08	11	-	-	-	-	-	-
Ae2	-	0.54	0.06	9	-	-	-	-	-	-
AB	-	0.43	0.06	7	-	-	-	-	-	-
Bt1	-	0.46	0.05	9	-	-	-	-	-	-
Bt2	-	0.45	0.04	11	-	-	-	-	-	-
BC	0.1	-	-	-	-	-	-	-	-	-
Ck	4.8	-	-	-	-	-	-	-	-	-

Hori.	TEC (me/100g)	Exchange Cations (me/100g) Na	K	Ca	Mg	Base Sat. (%)	Perm. Charge CEC (me/100g) Al	Ca	Mg	Total	Base Sat. (%)
LF	94.4	0.2	3.4	64.0	7.7	80	1.7	100.0	15.6	117.3	99
Ae1	7.1	0.03	0.1	4.9	0.3	75	0.1	5.6	1.0	6.7	99
Ae2	7.4	0.04	0.1	5.6	0.6	86	0.0	6.3	1.3	7.6	100
AB	9.5	0.02	0.2	6.3	1.1	80	0.04	6.3	2.0	8.3	100
Bt1	15.1	0.04	0.2	9.7	3.0	86	0.1	11.5	5.6	17.2	100
Bt2	15.6	0.04	0.2	7.1	2.7	64	0.2	10.5	6.4	17.1	99
BC	16.2	0.1	0.2	10.1	3.8	87	0.3	13.5	8.2	22.0	99
Ck	-	-	-	-	-	-	0.0	13.3	6.7	20.0	100

DESCRIPTION OF A PROFILE IN THE HORSE RIVER SOIL GROUP - SITE M78-40

Soil Unit: HRR1

Classification: NE3-88-18-W4

Landform:

Genetic Material: Morainal with very thin eolian veneer; fine-clayey

Surface Expression: Ridged (till doughnuts); very gentle slopes

Site Features: Upper to crest position; northwest aspect; moderately well drained; medium to low perviousness; non-stony

Vegetation: Upland mixed forest; aspen, white spruce, cranberry, bunchberry, twinflower

Profile Description:

LF - 4 to 0 cm; brown and dark brown; slightly to moderately decomposed leaves and needles; plenty of roots.

Ae - 0 to 8 cm; grayish brown (10YR 5.5/2 m); loamy sand; weak, medium platy; non-sticky; less than 5% coarse fragments, clear, wavy boundary.

AB - 8 to 13 cm; yellowish brown (10YR 5/4 m); clay; moderate, medium, subangular blocky; sticky; less than 5% coarse fragments; gradual, wavy boundary.

Bt - 13 to 28 cm; brown (10YR 4.5/3 m); clay; strong, medium, subangular blocky; very sticky; less than 5% coarse fragments; gradual, smooth boundary.

BC - 28 to 34 cm; dark grayish brown (2.5Y 4/2 m); heavy clay; strong, fine, subangular blocky; very sticky; less than 5% coarse fragments; clear, smooth boundary.

Ck - 34 to 70 cm; dark grayish brown (2.5Y 3.5/2 m); heavy clay; massive; very sticky; less than 5% coarse fragments.

ANALYSIS OF SOIL AT SITE M78-40

Horizon	Particle Size Distribution (%)									pH	pH
	Sand	VCS	CS	MS	FS	VFS	Silt	Clay	Fine C	$CaCl_2$	H_2O
LF	-	-	-	-	-	-	-	-	-	5.7	5.9
Ae	78	-	-	-	-	-	20	2	-	4.5	5.0
AB	27	0.3	1	7	14	4	27	46	-	4.4	4.6
Bt	12	-	-	-	-	-	28	60	-	4.6	4.9
BC	8	-	-	-	-	-	26	66	-	5.2	5.4
Ck	13	-	-	-	-	-	26	61	-	7.6	7.6

Horizon	$CaCO_3$ eq. (%)	Org. C (%)	Total N (%)	C/N	E.C. (mS/cm)	Sat. H_2O (%)	Cations in Saturation Extract (me/l)			
							Na	K	Ca	Mg
LF	-	12.36	0.75	16	-	-	-	-	-	-
Ae	-	0.22	0.02	11	-	-	-	-	-	-
AB	-	0.89	0.09	10	-	-	-	-	-	-
Bt	-	0.87	0.09	10	-	-	-	-	-	-
BC	0.2	-	-	-	-	-	-	-	-	-
Ck	9.4	-	-	-	-	-	-	-	-	-

Hori.	TEC (me/100g)	Exchange Cations (me/100g)				Base Sat. (%)	Perm. Charge CEC (me/100g)				Base Sat. (%)
		Na	K	Ca	Mg		Al	Ca	Mg	Total	
LF	37.5	0.1	1.5	21.4	3.5	71	-	-	-	-	-
Ae	1.8	0.05	0.1	1.0	0.1	69	-	-	-	-	-
AB	22.7	0.1	0.5	10.0	3.8	63	-	-	-	-	-
Bt	28.0	0.1	0.6	14.5	6.6	76	-	-	-	-	-
BC	30.3	0.4	0.6	19.3	7.8	90	-	-	-	-	-
Ck	27.6	-	-	-	-	-	-	-	-	-	-

DESCRIPTION OF A PROFILE IN THE JOSLYN SOIL GROUP - SITE M77-4

Soil Unit:	JSN1
Location:	NW10-92-11-W4
Classification:	Gray Solodized Solonetz
Landform:	
Genetic Material:	Glaciolacustrine; fine-clayey with some pebbles and stones
Surface Expression:	Undulating; very gentle slopes
Site Features:	Almost level sample site; moderately well drained; medium to low perviousness; slightly stony
Vegetation:	Upland mixed forest; aspen, white spruce, buffalo-berry, rose, bunchberry

Profile Description:

LFH - 6 to 0 cm; dark brown; slightly decomposed L layer; moderately decomposed F layer with abundant fungal hyphae; very thin H layer; mainly aspen leaf origin; abundant, very fine to medium, horizontal and oblique roots; clear, smooth boundary.

Ae - 0 to 8 cm; light gray (10YR 6/1 d; 10YR 5/2 m); silt loam; strong, coarse, platy; firm; plentiful, very fine, oblique, inped and exped roots; clear, wavy boundary.

Bnt1 - 8 to 28 cm; light brownish gray (10YR 6/2 d; 10YR 4/2 m); heavy clay; strong, medium, round-topped columnar breaking to strong, medium, angular blocky; very firm; few, vertical and oblique, exped roots; gradual, smooth boundary.

Bnt2 - 28 to 46 cm; light brownish gray (10YR 6/2 d; 10YR 3/2 m); heavy clay; strong fine subangular blocky; very firm; very few, fine vertical, exped roots; gradual, smooth boundary.

BCk - 46 to 84 cm; light brownish gray (10YR 6/2 d; 10YR 3/2 m); clay; moderate, fine, subangular blocky; very firm; few, very fine to fine, vertical, exped roots; diffuse, smooth boundary.

Ck1 - 84 to 90 cm; light brownish gray (10YR 6/2 d; 10YR 3/3 m); clay; massive to weak, fine subangular blocky; very firm; very few roots; diffuse, smooth boundary.

Ck2 - 90 to 105 cm; light brownish gray (10YR 6/2 d; 10YR 4/3 m); clay loam; massive; very firm; very few roots; diffuse, smooth boundary.

Ck3 - 105 to 130 cm; light brownish gray (10YR 6/2 d; 10YR 3/3 m); clay loam; massive; very firm; very few roots; diffuse, smooth boundary.

Ck4 - 130 to 150 cm; light brownish gray (10YR 6/2 d; 10YR 3/3 m); clay; massive; very firm; very few roots.

ANALYSIS OF SOIL AT SITE M77-4

Horizon	Particle Size Distribution (%)									pH	pH
	Sand	VCS	CS	MS	FS	VFS	Silt	Clay	Fine C	CaCl2	H2O
LFH	-	-	-	-	-	-	-	-	-	5.8	6.0
Ae	23	tr	2	8	8	5	60	17	3	4.9	5.5
Bnt1	4	tr	tr	1	2	tr	28	68	31	6.1	6.0
Bnt2	6	tr	tr	2	3	1	29	65	27	6.6	6.9
BCk	-	-	-	-	-	-	-	-	-	-	-
Ck1	23	tr	2	6	9	6	34	43	17	7.7	7.7
Ck2	26	tr	2	5	11	8	38	36	12	7.8	7.7
Ck3	36	tr	3	8	14	10	35	29	7	7.9	7.8
Ck4	17	tr	2	4	7	5	35	48	17	7.8	7.8

Horizon	CaCO3 eq. (%)	Org. C (%)	Total N (%)	C/N	E.C. (mS/cm)	Sat. H2O (%)	Cations in Saturation Extract (me/l)			
							Na	K	Ca	Mg
LFH	-	45.7	1.96	23	-	-	-	-	-	-
Ae	-	1.49	0.07	21	0.6	40	34.0	0.1	2.4	1.2
Bnt1	-	1.16	0.07	16	1.3	60	14.6	0.03	3.4	3.1
Bnt2	-	0.89	0.05	18	2.5	61	31.9	0.03	7.1	6.6
BCk	-	-	-	-	-	-	-	-	-	-
Ck1	5.0	-	-	-	2.6	56	22.8	0.1	5.5	4.6
Ck2	8.0	-	-	-	2.4	54	24.4	0.1	4.9	4.3
Ck3	5.7	-	-	-	2.5	51	26.3	0.2	4.6	3.9
Ck4	1.1	-	-	-	2.6	48	23.0	0.2	5.5	4.5

Hori.	TEC (me/100g)	Exchange Cations (me/100g)				Base Sat. (%)	Perm. Charge CEC (me/100g)				Base Sat. (%)
		Na	K	Ca	Mg		Al	Ca	Mg	Total	
LFH	115.2	3.5	4.1	76.2	16.4	87	2.2	100.0	22.6	124.8	98
Ae	8.9	0.9	0.3	4.1	1.7	79	-	-	-	-	-
Bnt1	26.6	6.8	0.4	16.4	10.4	100	-	-	-	-	-
Bnt2	22.8	7.1	0.3	15.6	10.0	100	-	-	-	-	-
BCk	-	-	-	-	-	-	-	-	-	-	-
Ck1	12.6	-	-	-	-	-	-	-	-	-	-
Ck2	9.3	-	-	-	-	-	-	-	-	-	-
Ck3	8.6	-	-	-	-	-	-	-	-	-	-
Ck4	12.0	-	-	-	-	-	-	-	-	-	-

DESCRIPTION OF A PROFILE IN THE JOSLYN SOIL GROUP - SITE M77-5

Soil Unit	JSN1
Location:	SE28-92-12-W4
Classification:	Gray Solod
Landform:	
Genetic Material:	Glaciolacustrine; fine-clayey
Surface Expression:	Undulating; very gentle slopes
Site Features:	Almost level sample site; moderately well to imperfectly drained; medium to low perviousness; non-stony
Vegetation:	Upland aspen forest; aspen, white spruce, willow, bunchberry, grasses

Profile Description:

LFH - 6 to 0 cm; slightly decomposed leaves overlying moderately decomposed leaves permeated with fungal hyphae; abundant, fine to medium, horizontal and oblique roots; clear, wavy boundary.

Aegj - 0 to 6 cm; light brownish gray (10YR 6/2 d; 10YR 4/2 m); silt loam; strong, coarse platy; friable; plentiful, very fine and fine, and few medium, random, roots; very few coarse fragments; clear, wavy boundary.

ABgj - 6 to 11 cm; light brownish gray (10YR 6/2 d; 10YR 4/2 m); silty clay loam; irregular medium round tops breaking to weak, coarse platy; very firm; few, fine, vertical and oblique roots; gradual, irregular boundary.

Bnt1 - 11 to 24 cm; grayish brown (10YR 5/2 d; 10YR 3/2 m); clay; strong, medium columnar breaking to strong, medium subangular blocky; very firm; few, fine, vertical roots; gradual, smooth boundary.

Bnt2 - 24 to 40 cm; light brownish gray (10YR 6/2 d; 10YR 3/3 m); clay; moderate, fine, subangular blocky; very firm; few, vertical roots; gradual, smooth boundary.

BCk - 49 to 90 cm; light brownish gray (10YR 6/2 d; 10YR 3/3 m); clay; weak, fine, subangular blocky; very firm; few, fine, vertical roots; pinkish bands; gradual, smooth boundary.

Ck - 90 to 135 cm; light brownish gray (10YR 6/2 d; 10YR 3/3 m); clay; massive; very firm; very few, very fine roots; pinkish bands.

ANALYSIS OF SOIL AT SITE M77-5

Horizon	Particle Size Distribution (%)									pH	pH
	Sand	VCS	CS	MS	FS	VFS	Silt	Clay	Fine C	CaCl2	H2O
LFH	-	-	-	-	-	-	-	-	-	5.6	6.0
Aegj	14	tr	1	3	5	5	65	21	2	5.4	6.3
ABgj	15	tr	1	3	6	5	49	36	12	5.4	6.0
Bnt1	11	tr	1	2	4	4	31	58	25	6.0	6.2
Bnt2	13	tr	1	2	5	5	33	54	23	6.9	6.8
BCk	11	tr	1	2	4	4	35	54	18	7.3	7.2
Ck	9	tr	tr	2	4	3	36	55	17	7.5	7.5

Horizon	CaCO3 eq. (%)	Org. C (%)	Total N (%)	C/N	E.C. (mS/cm)	Sat. H2O (%)	Cations in Saturation Extract (me/l)			
							Na	K	Ca	Mg
LFH	-	34.49	1.40	25	-	-	-	-	-	-
Aegj	-	1.19	0.07	17	0.4	40	-	-	-	-
ABgj	-	0.78	0.05	16	0.2	40	-	-	-	-
Bnt1	-	0.78	0.04	20	0.4	47	-	-	-	-
Bnt2	0.1	0.75	0.03	25	0.6	46	-	-	-	-
BCk	2.3	-	-	-	0.6	51	3.4	0.04	1.9	1.6
Ck	7.7	-	-	-	0.5	55	3.1	0.1	1.4	1.0

Hori.	TEC (me/100g)	Exchange Cations (me/100g)				Base Sat. (%)	Perm. Charge CEC (me/100g)				Base Sat. (%)
		Na	K	Ca	Mg		Al	Ca	Mg	Total	
LFH	93.5	2.5	4.0	50.6	23.6	86	1.1	65.0	33.7	99.8	99
Aegj	8.6	0.4	0.2	7.2	5.6	100	-	-	-	-	-
ABgj	13.7	4.9	0.2	5.4	5.9	100	-	-	-	-	-
Bnt1	23.7	4.8	0.4	11.5	12.4	100	-	-	-	-	-
Bnt2	20.2	4.4	0.4	11.0	10.7	100	-	-	-	-	-
BCk	17.5	4.1	0.4	21.1	9.8	100	-	-	-	-	-
Ck	14.9	2.4	0.4	36.8	8.2	100	-	-	-	-	-

DESCRIPTION OF A PROFILE IN THE JOSLYN SOIL GROUP - SITE M77-6

Soil Unit: JSN1

Location: SW17-94-11-W4

Classification: Gray Solodized Solonetz

Landform:

Genetic Material: Glaciolacustrine veneer overlying morainal deposits; clayey

Surface Expression: Undulating veneer; very gentle slopes

Site Features: Upper slope position; north aspect; imperfectly drained; low perviousness; slightly stony

Vegetation: Upland mixed forest; aspen, white spruce, various shrubs and herbs

Profile Description:

LFH - 4 to 0 cm; very dark gray (10YR 3/2 d; 10YR 2/1 m); slightly decomposed leaves in L layer; leaves permeated by fungal hyphae in F layer; abundant, very fine and fine, and few medium and coarse, horizontal and oblique roots; clear, wavy boundary.

Aegj - 0 to 3 cm; light gray (10YR 6/2 d; 10YR 4.5/2 m); silt loam; moderate, medium platy; friable; few, fine, oblique, and very few, medium and coarse, oblique roots; very few coarse fragments; clear, irregular boundary.

ABgj - 3 to 17 cm; light gray (10YR 7/2 d; 10YR 4.5/2 m); silt loam; weak, medium, round topped columnar breaking to moderate, medium, subangular blocky; very firm; very few, very fine to medium, oblique roots; very few coarse fragments; gradual, smooth boundary.

Bnt - 17 to 55 cm; pinkish gray (5YR 6/2 d; 5YR 4/3 m); heavy clay; strong, medium, columnar breaking to moderate, medium, subangular blocky; very firm; few, very fine and fine, vertical roots; very few coarse fragments; gradual, smooth boundary.

IIBC - 55 to 70 cm; light brownish gray (10YR 6/2 d; 10YR 3/2 m); silt loam; weak, medium subangular blocky; firm; very few, fine roots; very few coarse fragments; gradual, smooth boundary.

IICk1 - 70 to 100 cm; grayish brown (10YR 5/2 d; 10YR 3/3 m); clay loam; massive; firm; very few, very fine roots; few coarse fragments; gradual, smooth boundary.

IICk2 - 100 to 120 cm; grayish brown (10YR 5/2 d; 10YR 4/2 m); silty clay loam; massive; firm; few coarse fragments; very few, very fine roots.

ANALYSIS OF SOIL AT SITE M77-6

Horizon	Particle Size Distribution (%)									pH CaCl2	pH H2O
	Sand	VCS	CS	MS	FS	VFS	Silt	Clay	Fine C		
LFH	-	-	-	-	-	-	-	-	-	4.9	6.0
Aegj	18	tr	3	5	5	5	63	19	1	5.2	6.2
ABgj	18	tr	2	5	6	5	58	24	2	5.3	6.3
Bnt	6	tr	tr	1	2	1	15	79	29	7.3	7.2
IIBC	20	tr	1	3	6	9	72	8	2	5.9	6.6
IICk1	28	tr	1	6	13	8	36	36	12	7.6	8.2
IICk2	9	0	tr	2	4	2	55	36	14	7.8	8.4

Horizon	CaCO3 eq. (%)	Org. C (%)	Total N (%)	C/N	E.C. (mS/cm)	Sat. H2O (%)	Cations in Saturation Extract (me/l)			
							Na	K	Ca	Mg
LFH	-	15.34	0.89	17	-	-	-	-	-	-
Aegj	-	0.74	0.04	18	0.4	40	-	-	-	-
ABgj	-	0.77	0.05	15	0.5	40	-	-	-	-
Bnt	-	0.48	0.03	16	1.0	66	-	-	-	-
IIBC	-	-	-	-	0.3	40	-	-	-	-
IICk1	4.7	-	-	-	1.2	52	18.7	0.03	0.8	0.6
IICk2	4.8	-	-	-	1.0	67	14.6	0.03	0.9	0.7

Hori.	TEC (me/100g)	Exchange Cations (me/100g)				Base Sat. (%)	Perm. Charge CEC (me/100g)				Base Sat. (%)
		Na	K	Ca	Mg		Al	Ca	Mg	Total	
LFH	41.9	5.0	1.2	10.9	7.3	58	3.3	25.0	12.3	40.6	92
Aegj	5.4	1.4	0.2	1.7	1.8	94	-	-	-	-	-
ABgj	6.5	2.6	0.2	1.8	2.4	100	-	-	-	-	-
Bnt	23.7	8.4	0.4	5.9	16.6	100	-	-	-	-	-
IIBC	8.1	0.02	0.3	5.6	1.0	85	-	-	-	-	-
IICk1	-	-	-	-	-	-	-	-	-	-	-
IICk2	-	-	-	-	-	-	-	-	-	-	-

DESCRIPTION OF A PROFILE IN THE JOSLYN SOIL GROUP - SITE M77-9

Soil Unit: Sampled in DOV1 unit

Location: NW17-97-12-W4

Classification: Gray Solodized Solonetz (Joslyn series)

Landform:

  Genetic Material: Glaciolacustrine; clayey

  Surface Expression: Undulating; very gentle slopes

Site Features: Lower slope position; east aspect; imperfectly drained; medium perviousness; slightly stony

Vegetation: Upland aspen forest; aspen, alder, bunchberry

Profile Description:

LFH - 8 to 0 cm; mainly F material permeated with fungal hyphae, abundant, very fine to coarse, horizontal roots; clear, smooth boundary.

Ae - 0 to 12 cm; light gray (10YR 6/2 d; 10YR 5/3 m); silt loam; strong, medium platy; friable; plentiful, very fine to medium, oblique roots; less than 5% coarse fragments; abrupt, wavy boundary.

Bnt1 - 12 to 37 cm; grayish brown (10YR 5/2 d; 10YR 3/3 m); clay; moderate, medium, round topped columnar breaking to strong, medium subangular blocky; very firm; few, very fine to medium, oblique roots; less than 5% coarse fragments; gradual, smooth boundary.

Bnt2 - 37 to 60 cm; grayish brown (10YR 5/2 d; 10YR 2.5/3 m); clay; moderate, medium prismatic breaking to strong medium subangular blocky; very firm; few, very fine to medium, oblique roots; less than 5% coarse fragments; gradual, smooth boundary.

BCsk - 60 to 100 cm; grayish brown (10YR 5/2 d; 10YR 2.5/3 m); pinkish gray blotches; clay; strong, fine subangular blocky; very sticky; very few, very fine to medium, vertical roots; less than 5% coarse fragments; pockets of gypsum crystals; gradual, smooth boundary.

Csk1 - 100 to 120 cm; dark grayish brown (10YR 4.5/2 d; 10YR 3/2 m); clay loam; massive; very sticky; very few roots; less than 5% coarse fragments; pockets of gypsum crystals; diffuse, smooth boundary.

Csk2 - 120 to 150 cm; dark grayish brown (10YR 4.5/2 d; 10YR 3/2 m); massive; very sticky; very few roots; less than 5% coarse fragments.

ANALYSIS OF SOIL AT SITE M77-9

Horizon	Particle Size Distribution (%)									pH CaCl2	pH H2O
	Sand	VCS	CS	MS	FS	VFS	Silt	Clay	Fine C		
LFH	-	-	-	-	-	-	-	-	-	4.4	4.8
Ae	17	tr	1	4	6	6	70	13	2	4.3	5.2
Bnt1	14	0	1	4	6	3	38	48	27	6.0	6.3
Bnt2	15	tr	1	4	6	4	35	50	23	6.8	7.0
BCsk	22	tr	2	7	10	3	33	45	22	7.2	7.2
Csk1	36	tr	2	11	17	6	33	31	19	6.6	6.2
Csk2	41	tr	4	11	18	8	31	28	15	7.4	7.4

Horizon	CaCO3 eq. (%)	Org. C (%)	Total N (%)	C/N	E.C. (mS/cm)	Sat. H2O (%)	Cations in Saturation Extract (me/l)			
							Na	K	Ca	Mg
LFH	-	36.26	1.87	19	-	-	-	-	-	-
Ae	-	0.56	0.03	19	0.3	40	1.9	0.06	0.6	0.3
Bnt1	-	0.69	0.05	14	2.8	56	22.6	0.06	4.4	9.2
Bnt2	-	0.48	0.04	12	3.2	63	26.3	0.1	5.5	11.8
BCsk	-	-	-	-	5.8	68	60.9	0.3	25.1	32.3
Csk1	-	-	-	-	5.8	63	123.9	0.4	25.2	30.7
Csk2	-	-	-	-	6.0	61	85.9	0.6	23.8	28.2

Hori.	TEC (me/100g)	Exchange Cations (me/100g)				Base Sat. (%)	Perm. Charge CEC (me/100g)				Base Sat. (%)
		Na	K	Ca	Mg		Al	Ca	Mg	Total	
LFH	73.2	1.7	3.0	21.9	5.9	44	-	-	-	-	-
Ae	8.1	1.5	0.3	0.6	0.7	38	-	-	-	-	-
Bnt1	24.6	5.3	0.4	7.0	12.6	100	-	-	-	-	-
Bnt2	21.9	5.6	0.5	7.6	12.4	100	-	-	-	-	-
BCsk	19.0	5.5	0.5	30.6	11.2	100	-	-	-	-	-
Csk1	15.5	7.4	0.6	25.5	9.5	100	-	-	-	-	-
Csk2	13.4	6.8	0.6	19.5	8.6	100	-	-	-	-	-

DESCRIPTION OF A PROFILE IN THE JOSLYN SOIL GROUP - SITE M78-32

Soil Unit: JSN1

Location: NW8-94-13-W4

Classification: Solonetzic Gray Luvisol

Landform:

- Genetic Material: Glaciolacustrine; fine-clayey
- Surface Expression: Undulating; very gentle slopes

Site Features: Midslope position; south aspect; moderately well drained; low perviousness; slightly stony

Vegetation: Upland mixed forest; aspen, white spruce

Profile Description:

LF - 5 to 0 cm; dark brown; slightly to moderately decomposed leaves and needles

Ae1 - 0 to 6 cm; very dark brown (7.5YR 2/2 m); silt loam; strong, coarse platy; friable; <5% coarse fragments; gradual, wavy boundary.

Ae2 - 6 to 12 cm; light brown (7.5YR 6/4 m); silt loam; strong, coarse platy and weak, fine, subangular blocky; friable; <5% coarse fragments; clear, wavy boundary.

AB - 12 to 18 cm; (7.5YR 7/4 m); silty clay; strong, medium, subangular blocky; slightly sticky and firm; <5% coarse fragments; gradual, wavy boundary.

Btnj1 - 18 to 32 cm; brown (7.5YR 5/4 m); clay; moderate, medium columnar breaking to strong fine, subangular blocky; slightly sticky and firm; <5% coarse fragments; gradual, smooth boundary.

Btnj2 - 32 to 47 cm; reddish brown (5YR 4/3 m); clay; moderate medium columnar breaking to strong, fine subangular blocky; sticky and firm; <5% coarse fragments; gradual, smooth boundary.

Btnj3 - 47 to 70 cm; dark gray (5YR 4/1 m); clay; strong, medium columnar breaking to strong, fine subangular blocky; <5% coarse fragments; gradual smooth boundary.

BCk - 70 to 90 cm; dark gray (5YR 4/1 m); clay; strong, medium, subangular blocky; sticky; <5% coarse fragments; gradual, smooth boundary.

Ck - 90 to 110 cm; dark reddish gray (5YR 4/2 m); clay; massive; sticky; <5% coarse fragments.

ANALYSIS OF SOIL AT SITE M78-32

Horizon	Particle Size Distribution (%) Sand	VCS	CS	MS	FS	VFS	Silt	Clay	Fine C	pH CaCl2	pH H2O
LF	-	-	-	-	-	-	-	-	-	6.2	6.5
Ae1	25	tr	2	5	9	8	67	8	-	4.7	5.4
Ae2	23	-	2	5	9	7	57	20	-	4.5	5.2
AB	12	-	1	2	5	4	44	44	-	4.6	5.1
Btnj1	22	-	2	5	10	6	30	48	-	4.5	5.2
Btnj2	21	-	1	5	9	6	32	47	-	4.5	5.2
Btnj3	27	tr	2	5	9	5	32	41	-	6.4	6.9
BCk	21	tr	2	6	11	7	30	49	-	6.9	7.5
Ck	21	tr	2	5	10	5	30	49	-	7.4	7.7

Horizon	CaCO3 eq. (%)	Org. C (%)	Total N (%)	C/N	E.C. (mS/cm)	Sat. H2O (%)	Cations in Saturation Extract (me/l) Na	K	Ca	Mg
LF	-	37.61	2.44	15	-	-	-	-	-	-
Ae1	-	0.65	0.06	11	-	-	-	-	-	-
Ae2	-	0.58	0.07	8	-	-	-	-	-	-
AB	-	0.71	0.10	7	-	-	-	-	-	-
Btnj1	-	0.55	0.07	8	-	-	-	-	-	-
Btnj2	-	0.61	0.06	10	-	-	-	-	-	-
Btnj3	tr	0.70	0.06	12	-	-	-	-	-	-
BCk	tr	-	-	-	-	-	-	-	-	-
Ck	1.4	-	-	-	-	-	-	-	-	-

Hori.	TEC (me/100g)	Exchange Cations (me/100g) Na	K	Ca	Mg	Base Sat. (%)	Perm. Charge CEC (me/100g) Al	Ca	Mg	Total	Base Sat. (%)
LF	79.1	0.2	10.4	49.2	13.6	93	2.2	70.0	27.1	99.3	98
Ae1	4.9	0.03	0.1	1.9	0.7	56	0.3	2.4	1.2	3.9	92
Ae2	7.7	0.02	0.1	3.0	2.0	66	0.5	3.5	0.2	4.2	88
AB	17.1	0.05	0.3	6.4	6.4	77	-	-	-	-	-
Btnj1	17.1	0.06	0.3	6.1	7.2	80	-	-	-	-	-
Btnj2	19.2	0.4	0.4	7.4	9.,5	92	-	-	-	-	-
Btnj3	19.2	0.3	0.3	10.7	11.8	120	-	-	-	-	-
BCk	18.0	0.3	0.2	11.4	10.5	124	-	-	-	-	-
Ck	18.8	0.2	0.3	15.4	10.0	-	-	-	-	-	-

DESCRIPTION OF A PROFILE IN THE KEARL SOIL GROUP - SITE M79-8

Soil Unit: KEL1

Location: SW32-86-8-W4

Classification: Eluviated Dystric Brunisol

Landform:

- Genetic Material: Glaciolacustrine; sandy overlying fine-loamy
- Surface Expression: Ridged (beach ridge); very gentle slopes.

Site Features: Crest position; well drained; high perviousness; slowly pervious material at 110 cm; slightly stony

Vegetation: Upland mixed forest; aspen, balsam poplar, jack pine, bunchberry (dense and diverse understory of shrubs, herbs and mosses)

Profile Description:

LF - 5 to 0 cm; very dark brown (10YR 2/2 m); slightly to moderately decomposed leaves; abrupt, wavy boundary.

Ae1 - 0 to 8 cm; pale brown (10YR 6/3 m); sand; single grain; loose; less than 5% coarse fragments; clear, wavy boundary.

Ae2 - 8 to 20 cm; light gray (10YR 7/2 m); loamy sand; weak, coarse platy; very friable; less than 5% coarse fragments; clear, wavy boundary.

Btj - 20 to 32 cm; brown (7.5YR 5.5/4 m); loam; weak, fine, subangular blocky; friable; 10 to 20% coarse fragments; clear, wavy boundary.

Bm - 32 to 42 cm; brown (7.5YR 5.5/4 m); sand; single grain; very friable; 5 to 10% coarse fragments; clear, wavy boundary.

BC1 - 42 to 49 cm; brown (7.5YR 5/5 m); loamy sand; amorphous; friable; less than 5% coarse fragments; gradual smooth boundary.

BC2 - 49 to 71 cm; yellowish brown (10YR 5/4 m); sand; single grain; loose; less than 5% coarse fragments; gradual, smooth boundary.

IICgj - 71 to 110 cm; brown (7.5YR 4/2 m), with red (2.5YR 5/6 m) speckles and strong brown (7.5YR 5/6 m) mottles; clay loam; massive; firm; less than 5% coarse fragments.

ANALYSIS OF SOIL AT SITE M79-8

Horizon	Particle Size Distribution (%)									pH	pH
	Sand	VCS	CS	MS	FS	VFS	Silt	Clay	Fine C	CaCl2	H2O
LF	-	-	-	-	-	-	-	-	-	5.8	6.1
Ae1	90	4	19	49	16	2	9	2	-	4.1	4.6
Ae2	74	2	13	42	14	2	26	0	-	4.0	4.5
Btj	51	tr	10	28	11	2	46	8	-	4.2	4.8
Bm	90	4	16	54	15	1	3	7	-	4.7	5.2
BC1	79	1	10	39	22	6	11	10	-	4.6	5.0
BC2	97	tr	4	51	41	tr	0	3	-	5.0	5.6
IICgj	37	1	4	13	13	5	34	29	-	5.0	5.3

Horizon	CaCO3 eq. (%)	Org. C (%)	Total N (%)	C/N	E.C. (mS/ cm)	Sat. H2O (%)	Cations in Saturation Extract (me/l)			
							Na	K	Ca	Mg
LF	-	34.50	1.54	-	-	-	-	-	-	-
Ae1	-	0.82	0.31	-	-	-	-	-	-	-
Ae2	-	0.22	0.12	-	-	-	-	-	-	-
Btj	-	0.51	0.29	-	-	-	-	-	-	-
Bm	-	0.25	0.12	-	-	-	-	-	-	-
BC1	-	-	-	-	-	-	-	-	-	-
BC2	-	-	-	-	-	-	-	-	-	-
IICgj	-	-	-	-	-	-	-	-	-	-

Hori.	TEC (me/ 100g)	Exchange Cations (me/100g)				Base Sat. (%)	Perm. Charge CEC (me/100g)				Base Sat. (%)
		Na	K	Ca	Mg		Al	Ca	Mg	Total	
LF	101.1	0.2	3.7	70.5	15.1	88	-	-	-	-	-
Ae1	3.0	0.01	0.05	0.7	0.3	35	-	-	-	-	-
Ae2	1.5	0.0	0.04	0.3	0.05	26	-	-	-	-	-
Btj	6.5	0.0	0.1	1.3	0.4	28	-	-	-	-	-
Bm	3.7	0.0	0.1	0.9	0.7	46	-	-	-	-	-
BC1	5.5	0.1	0.1	2.2	0.7	56	-	-	-	-	-
BC2	1.0	0.0	0.04	0.4	0.2	64	-	-	-	-	-
IICgj	12.8	0.02	0.2	6.9	3.0	79	-	-	-	-	-

DESCRIPTION OF A PROFILE IN THE KENZIE SOIL GROUP - SITE M78-42

Soil Unit:	KNZ2
Location:	SE3-93-7-W4
Classification:	Terric Fibric Mesisol
Landform:	
Genetic Material:	Bog; sphagnum forest peat
Surface Expression:	Level to undulating
Site Features:	Water table at 0.2 m
Vegetation:	Wetland black spruce bog forest; black spruce, Labrador tea, swamp birch, sphagnum mosses, feathermosses

Profile Description:

Of1 - 0 to 15 cm; very pale brown; fibric sphagnum peat; non to slightly decomposed; very few roots; few wood fragments.

Om - 15 to 50 cm; pale brown and dark brown; sphagnum peat; moderately decomposed; very few roots; few wood fragments.

Of2 - 50 to 80 cm; brown; fibric sphagnum-forest peat; slightly to moderately decomposed; very few roots; very few wood fragments.

IICg - 80+ cm; grayish brown.

ANALYSIS OF SOIL AT SITE M78-42

Horizon	Particle Size Distribution (%)			Fiber Content (%)		Water Capacity (%w/w)	Volume Wt. (g/cm3)	Ice (%w/v)
	Sand	Silt	Clay	Unrubbed	Rubbed			
Of1	-	-	-	100	80	1929	0.039	-
Om	-	-	-	79	36	1220	0.069	-
Of2	-	-	-	100	47	2310	0.110	-
IICg	-	-	-	-	-	-	-	-

Horizon	pH of Soil H_2O	pH $CaCl_2$	pH H_2O	$CaCO_3$ eq. (%)	Org. C. (%)	Total N (%)	C/N
Of1	-	3.7	-	-	45.81	0.77	60
Om	4.8	4.8	-	-	47.60	0.45	106
Of2	-	5.5	-	-	46.12	1.00	46
IICg	-	5.6	6.4	-	-	-	-

Horizon	TEC (me/100g)	Exchange Cations (me/100g)				Base Sat. (%)	Ash (%)	Pyrophos. Index
		Na	K	Ca	Mg			
Of1	154.4	0.2	0.9	46.2	17.9	47	-	-
Om	177.1	0.1	0.1	82.8	34.3	74	-	-
Of2	195.7	0.1	0.1	119.2	33.0	88	-	-
IICg	12.8	0.0	0.1	9.5	2.8	97	-	-

DESCRIPTION OF A PROFILE IN THE KENZIE SOIL GROUP - SITE M78-48

Soil Unit:	KNZ1
Location:	SE15-94-6-W4
Classification:	Typic Fibrisol
Landform:	
Genetic Material:	Bog; sphagnum forest peat
Surface Expression:	Level; strongly mounded
Site Features:	Water table at 0.3 m.
Vegetation:	Wetland black spruce bog forest; black spruce, Labrador tea, sphagnum mosses

Profile Description:

Of1 - 0 to 40 cm; brown; fibric sphagnum peat; non to slightly decomposed; plentiful roots; few wood fragments.

Of2 - 40 to 120 cm; brown; fibric sphagnum-forest peat; slightly decomposed; plentiful roots; few wood fragments.

Of3 - 120 to 160 cm; brown; fibric sphagnum peat; slightly decomposed; few roots; few wood fragments.

ANALYSIS OF SOIL AT SITE M78-48

Horizon	Particle Size Distribution (%) Sand	Silt	Clay	Fiber Content (%) Unrubbed	Rubbed	Water Capacity (%w/w)	Volume Wt. (g/cm3)	Ice (%w/v)
Of1	-	-	-	100	99	2673	0.017	-
Of2	-	-	-	73	52	1341	0.016	-
Of3	-	-	-	65	56	1179	0.074	-

Horizon	pH of Soil H2O	pH CaCl2	pH H2O	CaCO3 eq. (%)	Org. C. (%)	Total N (%)	C/N
Of1	-	3.1	-	-	44.22	0.70	63
Of2	-	3.6	-	-	47.90	1.95	25
Of3	-	4.2	-	-	57.99	1.95	30

Horizon	TEC (me/ 100g)	Exchange Cations (me/100g) Na	K	Ca	Mg	Base Sat. (%)	Ash (%)	Pyrophos. Index
Of1	130.5	0.0	2.2	10.0	7.2	15	-	-
Of2	113.5	0.0	0.2	33.6	5.6	35	-	-
Of3	113.5	0.1	0.1	50.2	8.4	52	-	-

DESCRIPTION OF A PROFILE IN THE KENZIE SOIL GROUP - SITE M78-58

Soil Unit: KNZ2

Location: NE14-87-9-W4

Classification: Terric Fibrisol

Landform:

  Genetic Material: Bog; sphagnum peat

  Surface Expression: Level veneer overlying glaciolacustrine

Site Features: Water table at 0.3 m; drainage possibly affected by road ditch about 200 m away

Vegetation: Wetland black spruce bog forest; burnt; black spruce regenerating with Labrador tea, Rubus spp., cowberry, willow and feathermosses

Profile Description:

Of1 - 0 to 35 cm; very pale brown; sphagnum moss peat; non-decomposed; few roots; no wood fragments.

Of2 - 35 to 70 cm; pale brown; sphagnum peat; non to slightly decomposed; very few roots; few wood fragments.

Om - 70 to 90 cm; dark brown; mainly sphagnum peat; moderately decomposed; no roots; many wood fragments; some charcoal fragments.

IICg - 90 to 125 cm; gray; clay loam; massive; sticky.

ANALYSIS OF SOIL AT SITE M78-58

Horizon	Particle Size Distribution (%)			Fiber Content (%)		Water Capacity (%w/w)	Volume Wt. (g/cm3)	Ice (%w/v)
	Sand	Silt	Clay	Unrubbed	Rubbed			
Of1	-	-	-	100	100	1960	0.038	-
Of2	-	-	-	73	46	1230	0.067	-
Om	-	-	-	-	-	-	-	-
IICg	-	-	-	-	-	-	-	-

Horizon	pH of Soil H2O	pH CaCl2	pH H2O	CaCO3 eq. (%)	Org. C. (%)	Total N (%)	C/N
Of1	-	3.2	-	-	49.54	0.57	89
Of2	4.6	3.7	-	-	51.60	1.01	51
Om	-	5.2	-	-	47.24	1.59	30
IICg	-	6.1	7.0	-	-	-	-

Horizon	TEC (me/100g)	Exchange Cations (me/100g)				Base Sat. (%)	Ash (%)	Pyrophos. Index
		Na	K	Ca	Mg			
Of1	135.9	0.0	1.0	17.0	11.1	21	3.5	4
Of2	158.9	0.0	0.3	49.5	18.6	43	6.2	16
Om	163.0	0.1	0.1	107.1	24.6	81	26.8	100
IICg	16.2	0.03	0.2	13.4	4.0	109	-	-

DESCRIPTION OF A PROFILE IN THE KENZIE SOIL GROUP - SITE M78-61

Soil Unit: KNZ1

Location: NW6-97-8-W4

Classification: Typic Mesisol

Landform:

- Genetic Material: Bog; sphagnum and forest peat
- Surface Expression: Horizontal bog with some plateau formation

Site Features: Mounds about 1 m high have ice from about 40 cm to 120 cm; water table near surface in inter-mound area in mid September

Vegetation: Wetland black spruce bog forest; black spruce, Labrador tea, sphagnum and feathermosses

Profile Description:

Om1 - 0 to 50 cm; black; sphagnum, forest and fen peat moderately decomposed; plentiful roots; many wood fragments.

Om2 - 50 to 80 cm; brown and black; sphagnum and forest peat; slightly to moderately decomposed; no roots; few wood fragments.

Om3 - 80 to 120 cm; dark brown; sphagnum and forest peat; moderately decomposed; no roots; few wood fragments.

Om4 - 120 to 160 cm; brown; sphagnum and forest peat; slightly to moderately decomposed; no roots; few wood fragments.

ANALYSIS OF SOIL AT SITE M78-61

Horizon	Particle Size Distribution (%)			Fiber Content (%)		Water Capacity (%w/w)	Volume Wt. (g/cm3)	Ice (%w/v)
	Sand	Silt	Clay	Unrubbed	Rubbed			
Om1	-	-	-	67	26	646	0.155	-
Om2	-	-	-	63	33	611	0.145	-
Om3	-	-	-	46	27	671	0.133	-
Om4	-	-	-	69	38	864	0.096	-

Horizon	pH of Soil H2O	pH CaCl2	pH H2O	CaCO3 eq. (%)	Org. C. (%)	Total N (%)	C/N
Om1	6.4	5.7	-	-	51.88	2.30	23
Om2	-	5.7	-	-	49.34	2.21	22
Om3	-	5.6	-	-	52.28	2.83	20
Om4	6.5	5.8	-	-	55.01	2.68	20

Horizon	TEC (me/100g)	Exchange Cations (me/100g)				Base Sat. (%)	Ash (%)	Pyrophos. Index
		Na	K	Ca	Mg			
Om1	186.7	0.01	0.3	148.2	21.5	91	22.6	23
Om2	195.0	0.0	0.04	154.2	21.2	90	18.6	19
Om3	163.1	0.01	0.04	123.4	15.2	85	11.8	9
Om4	156.5	0.01	0.1	135.2	17.4	98	12.3	17

DESCRIPTION OF A PROFILE IN THE KENZIE SOIL GROUP - SITE M78-95

Soil Unit:	KNZ1
Location:	NE21-89-16-4
Classification:	Fibric Mesisol
Landform:	
Genetic Material:	Bog; sphagnum peat
Surface Expression:	Level
Site Features:	Water table near surface; sample site on slightly raised bog occurring in area of mixed fen-bog
Vegetation:	Wetland black spruce bog forest; black spruce, Labrador tea, sphagnum mosses

Profile Description:

Of1	-	0 to 13 cm; very pale brown; sphagnum peat; non-decomposed; original plant structures, preserved; few roots; no wood fragments.
Of2	-	13 to 24 cm; dark brown; sphagnum peat; slightly decomposed; original plant structures, well preserved; few roots; no wood fragments.
Of3	-	24 to 62 cm; very pale brown; sphagnum peat; non-decomposed; original plant structures, well preserved; few roots; no wood fragments.
Om1	-	62 to 120 cm; dark brown; sphagnum and fen peat, moderately decomposed; fine and medium platy structure; no roots; few wood fragments.
Om2	-	120 to 160 cm; dark brown to black; sphagnum and fen peat; moderately decomposed; fine to coarse platy; no roots; few wood fragments.
Om3	-	160 to 240 cm; dark brown to black; sphagnum and fen peat; moderately decomposed; fine platy; no roots; few wood fragments.
IICg	-	240+ cm; light gray; clay; massive; sticky.

ANALYSIS OF SOIL AT SITE M78-95

Horizon	Particle Size Distribution (%)			Fiber Content (%)		Water Capacity (%w/w)	Volume Wt. (g/cm3)	Ice (%w/v)
	Sand	Silt	Clay	Unrubbed	Rubbed			
Of1	-	-	-	100	95	1975	0.022	-
Of2	-	-	-	85	80	872	0.056	-
Of3	-	-	-	100	98	2494	0.032	-
Om1	-	-	-	69	25	718	0.124	-
Om2	-	-	-	60	25	770	0.119	-
Om3	-	-	-	50	22	742	0.122	-
IICg	-	-	-	-	-	-	-	-

Horizon	pH of Soil H2O	pH CaCl2	pH H2O	CaCO3 eq. (%)	Org. C. (%)	Total N (%)	C/N
Of1	5.0	3.1	-	-	49.03	0.61	80
Of2	-	3.2	-	-	51.20	1.06	48
Of3	-	3.6	-	-	49.98	1.02	49
Om1	5.5	4.7	-	-	56.03	2.18	26
Om2	-	5.0	-	-	57.35	2.67	21
Om3	-	4.8	-	-	50.70	2.69	19
IICg	-	-	-	-	-	-	-

Horizon	TEC (me/ 100g)	Exchange Cations (me/100g)				Base Sat. (%)	Ash (%)	Pyrophos. Index
		Na	K	Ca	Mg			
Of1	121.2	1.9	3.1	4.1	3.3	9	4.0	3
Of2	116.5	0.5	0.7	20.6	9.5	24	5.0	5
Of3	103.3	0.9	0.2	29.8	8.9	35	4.6	4
Om1	179.3	0.4	0.03	106.2	22.9	65	11.9	31
Om2	152.1	0.4	0.05	99.9	22.3	73	9.9	13
Om3	174.0	0.3	0.1	101.0	19.9	63	15.5	25
IICg	-	-	-	-	-	-	-	-

DESCRIPTION OF A PROFILE IN THE KENZIE SOIL GROUP - SITE M78-97

Soil Unit: KNZ2
Location: SE15-89-16-W4
Classification: Terric Mesisol
Landform:
  Genetic Material: Bog; brown moss, forest, and fen peat
  Surface Expression: Level veneer; moderately mounded
Site Features: Water table at 0.1 m; mounds about 0.5 to 1 m high
Vegetation: Wetland black spruce bog forest; black spruce, tamarack, Labrador tea, cowberry, brown mosses; lichens on top of mounds

Profile Description:

Of - 0 to 12 cm; pale yellowish brown; brown moss peat with minor fen and forest peat; slightly decomposed; original plant structure with medium fibres; many roots; few wood fragments.

Om1 - 12 to 50 cm; dark brown; forest-fen peat; slightly to moderately decomposed; fine and medium fibres; few roots; few wood fragments; some charcoal.

Om2 - 50 to 90 cm; brown and dark brown; forest-fen peat; moderately decomposed; fine and medium fibres; no roots; few wood fragments.

IICg - 90+ cm; light gray; clay loam to clay; mottled; massive; sticky.

ANALYSIS OF SOIL AT SITE M78-97

Horizon	Particle Size Distribution (%)			Fiber Content (%)		Water Capacity	Volume Wt.	Ice
	Sand	Silt	Clay	Unrubbed	Rubbed	(%w/w)	(g/cm3)	(%w/v)
Of	-	-	-	97	67	1121	0.030	-
Om1	-	-	-	71	25	860	0.104	-
Om2	-	-	-	58	17	637	0.142	-
IICg	-	-	-	-	-	-	-	-

Horizon	pH of Soil H2O	pH CaCl2	pH H2O	CaCO3 eq. (%)	Org. C. (%)	Total N (%)	C/N
Of	7.5	6.3	-	-	51.47	1.34	38
Om1	-	6.5	-	-	53.65	1.97	27
Om2	6.6	6.1	-	-	52.46	1.82	29
IICg	-	6.5	6.9	-	-	-	-

Horizon	TEC (me/ 100g)	Exchange Cations (me/100g)				Base Sat. (%)	Ash (%)	Pyrophos. Index
		Na	K	Ca	Mg			
Of	125.3	0.4	5.3	92.7	32.8	94	7.8	5
Om1	241.5	0.5	0.6	168.9	47.3	81	16.3	19
Om2	239.9	0.5	0.2	152.2	45.4	74	15.2	28
IICg	21.4	0.4	0.4	13.4	7.9	93	-	-

DESCRIPTION OF A PROFILE IN THE KENZIE SOIL GROUP - SITE M78-124

Soil Unit: KNZ2

Location: NE31-88-16-W4

Classification: Terric Fibric Mesisol

Landform:

  Genetic Material: Bog; sphagnum peat and sphagnum-fen peat

  Surface Expression: Level; moderately mounded microrelief

Site Features: Water table at 0.2 m; small, slightly raised bog in pothole depression

Vegetation: Wetland black spruce bog forest; black spruce, Labrador tea, cowberry, bog cranberry, Rubus spp., leather leaf, sphagnum mosses, cotton grass

Profile Description:

Of1 - 0 to 20 cm; pale brown; sphagnum peat; non-decomposed; original plant structure; few roots; few wood fragments.

Of2 - 20 to 50 cm; brown; sphagnum peat; non to slightly decomposed; original plant structure; few roots; few wood fragments.

Om1 - 50 to 80 cm; dark brown; sphagnum-fen peat; slightly to moderately decomposed; fine to coarse fibres; very few roots; few wood fragments.

Om2 - 80 to 120 cm; dark brown; sphagnum-fen peat; slightly to moderately decomposed; fine to coarse fibres; no roots; few wood fragments.

Om3 - 120 to 145 cm; dark brown; sphagnum-fen peat; moderately decomposed; fine and medium fibres; no roots; few wood fragments.

IICg - 145 to 180 cm; light gray; clay loam; massive; sticky.

ANALYSIS OF SOIL AT M78-124

Horizon	Particle Size Distribution (%) Sand	Silt	Clay	Fiber Content (%) Unrubbed	Rubbed	Water Capacity (%w/w)	Volume Wt. (g/cm3)	Ice (%w/v)
Of1	-	-	-	96	84	1624	0.030	-
Of2	-	-	-	100	67	1907	0.037	-
Om1	-	-	-	94	19	729	0.115	-
Om2	-	-	-	71	27	739	0.137	-
Om3	-	-	-	53	21	754	0.123	-
IICg	-	-	-	-	-	-	-	-

Horizon	pH of Soil H2O	pH CaCl2	pH H2O	CaCO3 eq. (%)	Org. C. (%)	Total N (%)	C/N
Of1	4.3	3.0	-	-	51.24	0.53	97
Of2	-	3.2	-	-	49.15	0.58	84
Om1	3.9	3.3	-	-	59.63	0.99	60
Om2	-	3.6	-	-	55.99	1.18	47
Om3	-	4.3	-	-	51.09	1.42	36
IICg	-	5.4	5.7	-	-	-	-

Horizon	TEC (me/100g)	Exchange Cations (me/100g) Na	K	Ca	Mg	Base Sat. (%)	Ash (%)	Pyrophos. Index
Of1	162.2	0.0	3.7	7.4	0.0	6	2.2	2
Of2	172.2	0.0	0.9	27.0	1.1	15	5.2	4
Om1	154.1	0.0	0.1	28.2	1.1	17	6.9	38
Om2	168.6	0.1	0.1	35.5	5.0	22	5.7	37
Om3	161.7	0.1	0.1	62.9	8.6	40	23.5	45
IICg	24.7	0.04	0.4	11.2	3.9	57	-	-

DESCRIPTION OF A PROFILE IN THE KENZIE SOIL GROUP - SITE M78-128

Soil Unit:	Sampled in MKW2 unit
Location:	NW4-99-17-W4
Classification:	Terric Fibrisol
Landform:	
Genetic Material:	Bog; sphagnum and forest peat
Surface Expression:	Plateau; gently sloping
Site Features:	Water table at 0.2 m
Vegetation:	Wetland black spruce bog forest; black spruce, Labrador tea, sphagnum mosses

Profile Description:

Of	- 0 to 50 cm; brown; sphagnum-forest peat; slightly decomposed; fine to coarse fibres; few roots; few wood fragments.
IIAhg	- 50 to 80 cm; very dark gray; loam; massive; sticky; mucky, having high humus content.

ANALYSIS OF SOIL AT SITE M78-128

Horizon	Particle Size Distribution (%)			Fiber Content (%)		Water Capacity (%w/w)	Volume Wt. (g/cm3)	Ice (%w/v)
	Sand	Silt	Clay	Unrubbed	Rubbed			
Of	-	-	-	-	-	-	-	-
IIAhg	37	42	21	-	-	-	-	-

Horizon	pH of Soil H2O	pH CaCl2	pH H2O	CaCO3 eq. (%)	Org. C. (%)	Total N (%)	C/N
Of	4.7	4.3	4.6	-	20.38	1.53	13
IIAhg	4.5	4.3	4.6	-	4.72	0.33	14

Horizon	TEC (me/ 100g)	Exchange Cations (me/100g)				Base Sat. (%)	Ash (%)	Pyrophos. Index
		Na	K	Ca	Mg			
Of	69.4	1.5	0.4	19.9	5.4	39	-	-
IIAhg	25.3	0.1	0.1	7.4	2.1	38	-	-

DESCRIPTION OF A PROFILE IN THE KENZIE SOIL GROUP - SITE M79-12

Soil Unit: Sampled in HRT4 unit

Location: SW36-104-6-W4

Classification: Fibric Mesisol

Landform:

  Genetic Material: Bog; sphagnum and forest peat

  Surface Expression: Level; slightly raised

Vegetation: Wetland semi-open black spruce bog; bog laurel, bog rosemary, bog cranberry, sphagnum mosses, bog birch, black spruce, pitcher plant

Profile Description:

Of1 - 0 to 60 cm; pale brown; sphagnum peat; non-decomposed; original plant structure.

Om1 - 60 to 120 cm; dark brown; forest-fen peat; slightly to moderately decomposed; fine and medium fibres.

Om2 - 120 to 160 cm; very dark brown; forest-fen peat; slightly to moderately decomposed; fine and medium fibres; few wood fragments.

Om3 - 160 to 260 cm; very dark brown; fen-forest peat; slightly to moderately decomposed; fine and medium fibres; few wood fragments.

Of2 - 260 to 315 cm; very dark brown; fen-forest peat; slightly to moderately decomposed; medium and coarse fibres; few wood fragments.

Om4 - 315 to 335 cm; very dark brown; fen-forest peat; moderately to well decomposed; fine fibres; few wood fragments.

ANALYSIS OF SOIL AT SITE M79-12

Horizon	Particle Size Distribution (%) Sand	Silt	Clay	Fiber Content (%) Unrubbed	Rubbed	Water Capacity (%w/w)	Volume Wt. (g/cm3)	Ice (%w/v)
Of	-	-	-	100	98	-	-	-
Om1	-	-	-	64	28	-	-	-
Om2	-	-	-	63	31	-	-	-
Om3	-	-	-	69	29	-	-	-
Of2	-	-	-	75	42	-	-	-
Om4	-	-	-	38	12	-	-	-

Horizon	pH of Soil H2O	pH CaCl2	pH H2O	CaCO3 eq. (%)	Org. C. (%)	Total N (%)	C/N
Of1	-	4.1	-	-	48.95	0.39	127
Om1	-	4.9	-	-	68.07	2.00	34
Om2	-	4.5	-	-	58.65	1.77	33
Om3	-	4.5	-	-	51.03	1.68	30
Of2	-	4.6	-	-	48.86	1.89	26
Om4	-	4.7	-	-	41.73	1.03	40

Horizon	TEC (me/ 100g)	Exchange Cations (me/100g) Na	K	Ca	Mg	Base Sat. (%)	Ash (%)	Pyrophos. Index
Of1	141.9	1.7	1.3	16.6	9.1	12	2.5	4
Om1	118.9	0.2	0.05	41.7	6.6	24	8.6	10
Om2	118.1	0.05	0.03	37.4	6.6	22	8.7	12
Om3	110.6	0.07	0.04	34.7	6.8	23	9.3	15
Of2	84.0	0.4	0.1	25.5	4.8	22	10.6	9
Om4	88.4	0.1	0.03	30.7	5.9	25	38.2	30

DESCRIPTION OF A PROFILE IN THE KINOSIS SOIL GROUP - SITE M76-6

Soil Unit:	KNS1
Location:	NW31-89-7-W4
Classification:	Gleyed Gray Luvisol
Landform:	
Genetic Material:	Morainal; fine-loamy
Surface Expression:	Undulating; nearly level to gentle slopes
Site Features:	Upper slope position; moderately well drained, medium perviousness; slightly stony

Profile Description:

LFH - no description.

Ae1 - 0 to 5 cm; light gray (10YR 7/1 m); silt loam; strong, medium platy; friable; clear, smooth boundary.

Ae2 - 5 to 12 cm; light brownish gray (10YR 6/2 m); silt loam; strong, medium angular blocky; friable; clear, smooth boundary.

Bt - 12 to 25 cm; dark yellowish brown (10YR 3/4 m); clay loam; strong, medium to coarse angular blocky; firm; gradual, wavy boundary.

Btgj - 25 to 45 cm; dark brown (10YR 4/3 m); clay loam; common; medium, faint mottles (5YR 5/6 m); strong, medium to coarse angular blocky; firm; gradual, wavy boundary.

BCgj - 45+ cm; dark yellowish brown (10YR 4/4 m); clay; common, medium, faint mottles (5YR 5/6 m); strong, medium angular blocky; firm.

ANALYSIS OF SOIL AT SITE M76-6

Horizon	Particle Size Distribution (%)									pH	pH
	Sand	VCS	CS	MS	FS	VFS	Silt	Clay	Fine C	CaCl2	H2O
LFH	-	-	-	-	-	-	-	-	-	-	-
Ae1	33	-	-	-	-	-	58	9	1	4.5	5.3
Ae2	36	-	-	-	-	-	52	12	2	4.5	5.2
Bt1	27	-	-	-	-	-	38	35	13	4.2	4.6
Bt2	36	-	-	-	-	-	30	34	14	4.2	4.7
BC	24	-	-	-	-	-	34	42	18	4.1	4.5

Horizon	CaCO3 eq. (%)	Org. C (%)	Total N (%)	C/N	E.C. (mS/cm)	Sat. H2O (%)	Cations in Saturation Extract (me/l)			
							Na	K	Ca	Mg

Hori.	TEC (me/100g)	Exchange Cations (me/100g)				Base Sat. (%)	Perm. Charge CEC (me/100g)				Base Sat. (%)
		Na	K	Ca	Mg		Al	Ca	Mg	Total	
LFH	-	-	-	-	-	-	-	-	-	-	-
Ae1	6.3	0.3	0.1	2.8	0.8	63	-	-	-	-	-
Ae2	6.3	0.04	0.1	3.0	0.8	62	-	-	-	-	-
Bt1	16.1	0.02	0.2	6.0	2.4	54	-	-	-	-	-
Bt2	14.7	0.4	0.2	5.4	2.6	58	-	-	-	-	-
BC	21.3	0.3	0.2	7.5	4.0	56	-	-	-	-	-

DESCRIPTION OF A PROFILE IN THE KINOSIS SOIL GROUP - SITE M77-12

Soil Unit:	KNS1
Location:	NW10-93-6-W4
Classification:	Eluviated Dystric Brunisol
Landform:	
Genetic Material:	Morainal; coarse-loamy
Surface Expression:	Hummocky; gentle slopes
Site Features:	Crest position; well-drained; high perviousness; slightly stony
Vegetation:	Upland mixed forest; jack pine aspen, blueberry, lichens

Profile Description:

LFH - 6 to 10 cm; slightly to moderately decomposed needles, leaves and lichens; few, very fine and fine, horizontal roots; clear, wavy boundary.

Ae1 - 0 to 5 cm; gray (10YR 6/1 d; 10YR 3/2 m); loamy sand; moderate medium platy; very friable; few, very fine to coarse, oblique roots; 10 to 20% coarse fragments; gradual, wavy boundary.

Ae2 - 5 to 16 cm; light gray (10YR 6/1 d; 10YR 5/2 m); loamy sand; moderate, medium platy; very friable; few, very fine to coarse, oblique roots; 10 to 20% coarse fragments; clear, wavy boundary.

Bm - 16 to 36 cm; light yellowish brown (10YR 6/4 d; 10YR 4/4 m); fine sandy loam; moderate, fine and medium subangular blocky; friable; very few, very fine to coarse, oblique roots; 10 to 20% coarse fragments; gradual, smooth boundary.

BC - 36 to 68 cm; pale brown (10YR 6/3 d; 10YR 4/3 m); fine sandy loam; massive; friable; very few, very fine to medium, oblique roots; 10 to 20% coarse fragments; gradual, smooth boundary.

C - - 68 to 93 cm; brown (10YR 5/3 d; 10YR 3/3 m); fine sandy loam; massive; friable; very few roots; 10 to 20% coarse fragments.

ANALYSIS OF SOIL AT SITE M77-12

Horizon	Particle Size Distribution (%)									pH CaCl2	pH H2O
	Sand	VCS	CS	MS	FS	VFS	Silt	Clay	Fine C		
LFH	-	-	-	-	-	-	-	-	-	3.4	3.8
Ae1	72	tr	5	24	31	12	28	-	-	3.5	4.0
Ae2	78	tr	4	21	38	15	22	-	-	3.8	4.3
Bm	57	1	4	13	26	14	34	9	5	4.3	5.1
BC	62	1	7	20	25	9	27	11	6	4.6	5.0
C	58	1	5	19	24	9	26	16	8	5.6	5.7

Horizon	CaCO3 eq. (%)	Org. C (%)	Total N (%)	C/N	E.C. (mS/cm)	Sat. H2O (%)	Cations in Saturation Extract (me/l)			
							Na	K	Ca	Mg
LFH	-	40.47	1.00	40	-	-	-	-	-	-
Ae1	-	0.52	0.02	26	-	-	-	-	-	-
Ae2	-	0.12	0.01	12	-	-	-	-	-	-
Bm	-	0.33	0.01	33	-	-	-	-	-	-
BC	-	-	-	-	-	-	-	-	-	-
C	-	-	-	-	-	-	-	-	-	-

Hori.	TEC (me/100g)	Exchange Cations (me/100g)				Base Sat. (%)	Perm. Charge CEC (me/100g)				Base Sat. (%)
		Na	K	Ca	Mg		Al	Ca	Mg	Total	
LFH	86.4	0.9	2.6	9.2	2.3	17	-	-	-	-	-
Ae1	1.8	0.01	0.1	0.5	0.05	32	-	-	-	-	-
Ae2	0.8	0.0	0.1	0.2	0.0	29	-	-	-	-	-
Bm	4.0	0.02	0.1	1.1	0.2	36	-	-	-	-	-
BC	4.2	0.01	0.1	2.5	0.8	81	-	-	-	-	-
C	6.0	0.05	0.2	5.1	1.7	100	-	-	-	-	-

DESCRIPTION OF A PROFILE IN THE KINOSIS SOIL GROUP - SITE M77-13

Soil Unit:	KNS1
Location:	SE9-94-6-W4
Classification:	Orthic Gray Luvisol (Kinosis series)
Landform:	
Genetic Material:	Morainal; coarse-loamy
Surface Expression:	Hummocky; moderate slopes
Site Features:	Upper slope position; northeast aspect; well-drained; medium perviousness; moderately stony
Vegetation:	Upland jack pine forest; transitional to mixed coniferous forest; jack pine, black spruce, blueberry, lichens

Profile Description:

LFH - 6 to 0 cm; slightly to moderately decomposed needles, leaves and lichens; plentiful, very fine and fine, horizontal roots; clear, wavy boundary.

Ae - 0 to 10 cm; light gray (10YR 7/1 d; 10YR 4/2 m); fine sandy loam; weak medium platy; very friable; few, very fine and fine, oblique roots; 10 to 20% coarse fragments; clear, wavy boundary.

Bt1 - 10 to 25 cm; light yellowish brown (10YR 6/4 d; 10YR 4/4 m); fine sandy loam; weak, fine subangular blocky; friable; very few, very fine and fine, oblique roots; 10 to 20% coarse fragments; clear, wavy boundary.

Bt2 - 25 to 53 cm; pale brown (10YR 6/3 d; 10YR 4/4 m); loam; weak, fine subangular blocky; friable; very few, very fine and fine, oblique roots; 10 to 20% coarse fragments; gradual, smooth boundary.

BC1 - 53 to 90 cm; brown (10YR 5.5/3 d; 10YR 4/3 m); fine sandy loam; massive; friable; very few, very fine to coarse, oblique and vertical roots; 10 to 20% fragments; diffuse, smooth boundary.

BC2 - 90 to 120 cm; brown (10YR 5/3.5 d; 10YR 3/3 m); fine sandy loam; massive; friable; very few roots; 10 to 20% coarse fragments; numerous small sand lenses throughout matrix.

ANALYSIS OF SOIL AT SITE M77-13

Horizon	Particle Size Distribution (%)									pH CaCl2	pH H2O
	Sand	VCS	CS	MS	FS	VFS	Silt	Clay	Fine C		
LFH	-	-	-	-	-	-	-	-	-	3.5	4.0
Ae	52	tr	6	18	20	8	46	2	1	3.7	4.4
Bt1	51	1	7	15	19	9	35	14	3	4.3	5.1
Bt2	52	1	5	16	21	9	28	20	6	4.4	5.0
BC1	63	1	5	20	26	11	23	14	4	4.5	5.0
BC2	58	1	4	17	26	10	25	17	5	5.1	5.4

Horizon	CaCO3 eq. (%)	Org. C (%)	Total N (%)	C/N	E.C. (mS/cm)	Sat. H2O (%)	Cations in Saturation Extract (me/l)			
							Na	K	Ca	Mg
LFH	-	37.77	1.09	35	0.1	40	-	-	-	-
Ae	-	0.58	0.02	29	0.1	40	-	-	-	-
Bt1	-	0.68	0.02	34	0.1	40	-	-	-	-
Bt2	-	0.31	0.01	31	0.1	40	-	-	-	-
BC1	-	-	-	-	0.1	40	-	-	-	-
BC2	-	-	-	-	0.1	40	-	-	-	-

Hori.	TEC (me/100g)	Exchange Cations (me/100g)				Base Sat. (%)	Perm. Charge CEC (me/100g)				Base Sat. (%)
		Na	K	Ca	Mg		Al	Ca	Mg	Total	
LFH	79.1	1.0	2.4	14.4	2.3	25	-	-	-	-	-
Ae	2.7	0.01	0.05	0.4	0.03	20	-	-	-	-	-
Bt1	6.0	0.03	0.07	1.3	0.3	28	-	-	-	-	-
Bt2	7.0	0.03	0.1	2.5	1.0	52	-	-	-	-	-
BC1	6.2	0.03	0.1	3.7	1.5	86	-	-	-	-	-
BC2	5.5	0.04	0.1	4.7	1.6	100	-	-	-	-	-

DESCRIPTION OF A PROFILE IN THE KINOSIS SOIL GROUP - SITE M77-14

Soil Unit: KNS1

Location: SW25-95-6-W4

Classification: Brunisolic Gray Luvisol

Landform:

  Genetic Material: Morainal; coarse-loamy

  Surface Expresion: Hummocky; gentle slopes

Site Features: Lower slope position; south aspect; imperfectly drained; medium perviousness; moderately stony

Vegetation: Upland jack pine forest; jack pine, lichens, blueberry

Profile Description:

LFH - 7 to 0 cm; slightly to moderately decomposed needles, leaves and lichens; plentiful, very fine to medium, horizontal roots; clear, wavy boundary.

Ae - 0 to 8 cm; light brownish gray (10YR 6/2 d; 10YR 4/2 m); silt loam; moderate, medium platy; very friable; few, very fine to medium, oblique roots; 10 to 20% coarse fragments; clear, irregular boundary tonguing into Bm.

AB - 8 to 20 cm; light yellowish brown (10YR 6.5/4 d; 10YR 4/4 m); fine sandy loam; weak, medium subangular blocky to weak, medium platy; friable; very few, very fine to medium, oblique roots; 10 to 20% coarse fragments; diffuse, smooth boundary.

Bm - 20 to 54 cm; light yellowish brown (10YR 6/5 d; 10YR 4/4 m); fine sandy loam; weak, medium subangular blocky; friable; few, fine to medium, oblique roots; 10 to 20% coarse fragments; gradual, smooth boundary.

BC - 54 to 100 cm; pale brown (10YR 6/3 d; 10YR 4/3 m); fine sandy loam; very weak, medium subangular blocky; very few roots; 10 to 20% coarse fragments.

ANALYSIS OF SOIL AT SITE M77-14

Horizon	Particle Size Distribution (%)									pH	pH
	Sand	VCS	CS	MS	FS	VFS	Silt	Clay	Fine C	CaCl2	H2O
LFH	-	-	-	-	-	-	-	-	-	3.2	3.7
Ae	27	1	2	6	8	10	64	9	-	3.6	4.2
AB	68	tr	5	24	26	13	23	9	2	4.3	5.1
Bm	73	tr	5	24	28	16	17	10	-	4.4	5.2
Btj	54	tr	5	17	23	9	27	19	5	4.6	4.9

Horizon	CaCO3 eq. (%)	Org. C (%)	Total N (%)	C/N	E.C. (mS/cm)	Sat. H2O (%)	Cations in Saturation Extract (me/l)			
							Na	K	Ca	Mg
LFH	-	47.28	1.40	34	-	-	-	-	-	-
Ae	-	1.72	0.08	22	-	-	-	-	-	-
AB	-	0.24	0.01	24	-	-	-	-	-	-
Bm	-	0.13	0.01	13	-	-	-	-	-	-
Btj	-	-	-	-	-	-	-	-	-	-

Hori.	TEC (me/100g)	Exchange Cations (me/100g)				Base Sat. (%)	Perm. Charge CEC (me/100g)				Base Sat. (%)
		Na	K	Ca	Mg		Al	Ca	Mg	Total	
LFH	98.8	0.3	1.4	7.1	1.7	11	7.2	15.0	5.8	28.0	74
Ae	4.3	0.02	0.1	0.6	0.1	18	2.2	0.7	0.2	3.1	29
AB	3.8	0.03	0.06	0.4	0.3	27	1.6	0.8	0.3	2.7	41
Bm	2.5	0.05	0.04	0.4	0.3	29	1.1	0.6	0.4	2.1	48
Btj	6.7	0.04	0.1	2.8	2.2	77	0.5	4.6	5.3	10.4	95

DESCRIPTION OF A PROFILE IN THE KINOSIS SOIL GROUP - SITE M77-25

Soil Unit:	KNS1
Location:	SE30-98-5-W4
Classification:	Orthic Gray Luvisol
Landform:	
Genetic Material:	Morainal; coarse-loamy
Surface Expression:	Undulating; gentle slopes
Site Features:	Upper slope position, northeast aspect; well drained; medium perviousness; moderately stony
Vegetation:	Upland mixed forest; jack pine, aspen, alder, blueberry, cowberry, lichens

Profile Description:

LFH - 8 to 0 cm; slightly to moderately decomposed leaves and needles; plentiful, very fine to medium, and very few, coarse, horizontal roots; clear, smooth boundary.

Ae1 - 0 to 18 cm; light gray (10YR 6/2 d; 10YR 5/2 m); gravelly loamy sand; weak, medium platy; very friable; few, very fine to medium, and very few, coarse, horizontal roots; 20 to 30% coarse fragments; diffuse, smooth boundary.

Ae2 - 18 to 26 cm; light gray (10YR 7/2 d; 10YR 5/3 m); gravelly fine sandy loam; weak, medium platy; very friable; few, very fine and fine, and very few, medium and coarse, oblique roots; 20 to 30% coarse fragments; clear, smooth boundary.

Bt - 26 to 60 cm; pale brown (10YR 6/3 d; 10YR 4/4 m); gravelly loam; moderate, medium subangular blocky; firm; very few, very fine to medium roots; 20 to 30% coarse fragments; gradual, smooth boundary.

C - 60+ cm; brown; gravelly loam to clay loam; massive; hard; very few roots; 20 to 30% coarse fragments.

ANALYSIS OF SOIL AT SITE M77-25

Horizon	Particle Size Distribution (%)									pH	pH
	Sand	VCS	CS	MS	FS	VFS	Silt	Clay	Fine C	CaCl2	H2O
LFH	-	-	-	-	-	-	-	-	-	5.1	4.8
Ae1	71	1	5	21	30	14	27	2	-	4.2	4.8
Ae2	65	1	6	20	25	13	31	4	-	4.3	4.9
Bt	47	1	7	14	18	7	28	25	11	4.6	4.9
C	-	-	-	-	-	-	-	-	-	-	-

Horizon	CaCO3 eq. (%)	Org. C (%)	Total N (%)	C/N	E.C. (mS/cm)	Sat. H2O (%)	Cations in Saturation Extract (me/l)			
							Na	K	Ca	Mg
LFH	-	48.09	1.3	37	-	-	-	-	-	-
Ae1	-	0.32	0.03	11	-	-	-	-	-	-
Ae2	-	0.15	0.01	15	-	-	-	-	-	-
Bt	-	0.56	0.02	28	-	-	-	-	-	-
C	-	-	-	-	-	-	-	-	-	-

Hori.	TEC (me/100g)	Exchange Cations (me/100g)				Base Sat. (%)	Perm. Charge CEC (me/100g)				Base Sat. (%)
		Na	K	Ca	Mg		Al	Ca	Mg	Total	
LFH	76.1	0.04	3.4	30.0	7.2	53	-	-	-	-	-
Ae1	1.0	0.01	0.01	0.6	0.2	81	-	-	-	-	-
Ae2	1.0	0.01	0.02	0.5	0.2	70	-	-	-	-	-
Bt	9.6	0.03	0.1	5.3	2.6	84	-	-	-	-	-
C	-	-	-	-	-	-	-	-	-	-	-

DESCRIPTION OF A PROFILE IN THE KINOSIS SOIL GROUP - SITE M77-31

Soil Unit:	KSN1
Location:	NE18-85-8-W4
Classification:	Orthic Gray Luvisol
Landform:	
Genetic Material:	Morainal; fine-loamy
Surface Expression:	Rolling; gentle slopes
Site Features:	Upper slope position; north aspect; moderately well drained; medium perviousness; very stony
Vegetation:	Upland aspen forest; aspen, white birch, bunchberry, club mosses

Profile Description:

LFH - 7 to 0 cm; slightly to moderately well decomposed; spongy matt mainly of leaf composition; permeated with fungal hyphae; clear, wavy boundary.

Ae - 0 to 12 cm; light brownish gray (10YR 6.5/2 d; 10YR 5.5/2 m); fine sandy loam; weak, medium platy; very friable; 20 to 30% coarse fragments; clear, wavy boundary.

Bt1 - 12 to 25 cm; yellowish brown (10YR 5/4 d; 10YR 3/4 m); loam; weak, medium subangular blocky; firm; 10 to 20% coarse fragments; gradual, smooth boundary.

Bt2 - 25 to 38 cm; yellowish brown (10YR 5.5/4 d; 10YR 4/4 m); sandy clay loam; weak, medium subangular blocky; firm; 10 to 20% coarse fragments; diffuse, smooth boundary.

BC - 38 to 67 cm; brown (10YR 5/3 d; 10YR 3/3 m); sandy clay loam; massive; firm; 10 to 20% coarse fragments; diffuse, smooth boundary.

C - 67 to 120 cm; brown (10YR 5/3 d; 10YR 3/3 m); sandy clay loam; massive; firm; 10 to 20% coarse fragments.

ANALYSIS OF SOIL AT SITE M77-31

Horizon	Particle Size Distribution (%)									pH $CaCl_2$	pH H_2O
	Sand	VCS	CS	MS	FS	VFS	Silt	Clay	Fine C		
LFH	-	-	-	-	-	-	-	-	-	3.6	3.9
Ae	66	1	7	21	27	10	31	3	-	3.9	4.7
Bt1	52	tr	4	15	23	10	30	18	10	4.2	4.7
Bt2	48	1	4	13	20	10	29	23	14	4.3	4.8
BC	49	1	5	14	20	9	28	23	15	4.3	4.7
C	50	1	6	16	19	8	27	23	14	4.7	4.8

Horizon	$CaCO_3$ eq. (%)	Org. C (%)	Total N (%)	C/N	E.C. (mS/cm)	Sat. H_2O (%)	Cations in Saturation Extract (me/l)			
							Na	K	Ca	Mg
LFH	-	22.04	1.10	22	-	-	-	-	-	-
Ae	-	0.43	0.03	14	0.1	40	0.3	0.06	1.0	0.4
Btl	-	0.86	0.07	12	0.1	42	0.3	0.05	0.8	0.3
Bt2	-	0.46	0.04	12	0.1	44	0.3	0.06	0.6	0.2
BC	0.1	-	-	-	0.1	40	0.2	0.05	0.7	0.2
C	0.2	-	-	-	0.1	42	0.4	0.05	1.0	0.4

Hori.	TEC (me/100g)	Exchange Cations (me/100g)				Base Sat. (%)	Perm. Charge CEC (me/100g)				Base Sat. (%)
		Na	K	Ca	Mg		Al	Ca	Mg	Total	
LFH	71.3	0.2	2.1	16.4	2.4	30					
Ae	3.0	0.01	0.1	1.1	0.3	49					
Btl	11.3	0.1	0.1	2.2	0.7	28					
Bt2	12.7	0.02	0.2	2.7	1.2	32					
BC	13.3	0.03	0.2	4.4	2.0	50					
C	12.7	0.1	0.2	6.3	3.4	79					

DESCRIPTION OF A PROFILE IN THE KINOSIS SOIL GROUP - SITE M78-6

Soil Unit: KNS1

Location: SE35-84-9-W4

Classification: Orthic Gray Luvisol

Landform:

- Genetic Material: Morainal; fine-loamy
- Surface Expression: Hummocky; gentle and moderate slopes

Site Features: Upper slope position; northeast aspect; moderately well drained; medium perviousness; moderately stony

Vegetation: Upland mixed forest; aspen, white spruce, black spruce, alder, feathermoss

Profile Description:

LFH - 9 to 0 cm; dark brown; slightly to moderately decomposed leaves, needles and mosses; permeated with fungal hyphae; abrupt, smooth boundary.

Ae1 - 0 to 8 cm; grayish brown (10YR 5/2 m); silt; moderate, fine platy; friable; 5% coarse fragments; plentiful, fine to coarse, horizontal roots; clear, wavy boundary.

Ae2 - 8 to 21 cm; yellowish brown (10YR 5/4 m); silt loam; strong, fine platy; friable; 5% coarse fragments; few, fine to coarse, oblique roots; gradual, wavy boundary.

AB - 21 to 26 cm; brown (10YR 5/3 m); silt loam; moderate, medium platy to moderate, fine subangular blocky; friable; 5% coarse fragments; very few, fine, oblique roots; clear, wavy boundary.

Bt - 26 to 41 cm; dark brown (10YR 4/3 m); clay loam; moderate, medium subangular blocky; firm; 5% coarse fragments; very few roots; clear, wavy boundary.

BC - 41 to 70 cm; dark grayish brown (10YR 4/2 m); clay loam; moderate, medium subangular blocky; firm; 5% coarse fragments; very few roots; gradual, smooth boundary.

C - 70 to 110+ cm; dark grayish brown (10YR 4/2 m); loam; massive; firm; very few roots; 5% coarse fragments.

ANALYSIS OF SOIL AT SITE M78-6

Horizon	Particle Size Distribution (%)									pH	pH
	Sand	VCS	CS	MS	FS	VFS	Silt	Clay	Fine C	CaCl2	H2O
LFH	-	-	-	-	-	-	-	-	-	3.3	3.9
Ae1	6	-	-	-	-	-	83	11	-	3.7	4.6
Ae2	5	-	-	-	-	-	78	17	-	4.1	5.1
AB	23	tr	2	7	9	4	56	21	-	4.2	4.8
Bt	44	tr	4	10	19	10	27	29	-	4.2	4.5
BC	42	tr	5	12	17	8	28	30	-	4.1	4.6
C	46	1	6	13	18	8	29	25	-	4.3	4.6

Horizon	CaCO3 eq. (%)	Org. C (%)	Total N (%)	C/N	E.C. (mS/ cm)	Sat. H2O (%)	Cations in Saturation Extract (me/l)			
							Na	K	Ca	Mg
LFH	-	37.65	1.62	23	-	-	-	-	-	-
Ae	-	1.09	0.08	14	-	-	-	-	-	-
Ae2	-	0.51	0.05	10	-	-	-	-	-	-
AB	-	0.41	0.03	14	-	-	-	-	-	-
Bt	-	0.33	0.03	11	-	-	-	-	-	-
BC	-	-	-	-	-	-	-	-	-	-
C	-	-	-	-	-	-	-	-	-	-

Hori.	TEC (me/ 100g)	Exchange Cations (me/100g)				Base Sat. (%)	Perm. Charge CEC (me/100g)				Base Sat. (%)
		Na	K	Ca	Mg		Al	Ca	Mg	Total	
LFH	86.4	0.04	3.7	21.2	3.6	33	-	-	-	-	-
Ae1	14.5	0.1	0.2	0.4	0.2	6	-	-	-	-	-
Ae2	7.8	0.02	0.2	1.2	0.6	26	-	-	-	-	-
AB	10.2	0.02	0.2	2.3	1.1	35	-	-	-	-	-
Bt	16.7	0.03	0.2	5.1	2.6	47	-	-	-	-	-
BC	15.3	0.1	0.2	6.0	3.4	63	-	-	-	-	-
C	14.8	0.1	0.2	6.8	3.6	72	-	-	-	-	-

DESCRIPTION OF A PROFILE IN THE KINOSIS SOIL GROUP - SITE M78-7

Soil Unit:	KNS1
Location:	8-82-7-W4
Classification:	Gleyed Gray Luvisol
Landform:	
Genetic Material:	Morainal; fine-loamy
Surface Expression:	Undulating; gentle slopes
Site Features:	Upper slope position; northeast aspect; moderately well drained; medium perviousness; moderately stony
Vegetation:	Upland aspen forest; aspen, sarsaparilla, clubmosses

Profile Description:

LF - 8 to 0 cm; dark brown; slightly to moderately decomposed leaves and mosses; plentiful, fine to coarse, horizontal roots.

Aegj - 0 to 6 cm; pale brown (10YR 6/3 m); fine sandy loam; moderate, coarse platy; friable; 5% coarse fragments; plentiful, fine to coarse, horizontal roots; wavy boundary.

ABgj - 6 to 17 cm; light yellowish brown (10YR 6/4 m); fine sandy loam; moderate, fine platy; friable; 5% coarse fragments; few, fine to medium, oblique roots; gradual, smooth boundary.

Bmgj - 17 to 42 cm; light yellowish brown (10YR 6/4 m); fine sandy loam; weak, medium subangular blocky; friable; 5% coarse fragments; few, fine, oblique roots; gradual, smooth boundary.

Btj - 42 to 80 cm; dark grayish brown (10YR 4/2 m); loam; weak, medium subangular blocky; firm; 5% coarse fragments; very few roots; clear, smooth boundary.

C - 80 to 120 cm; dark grayish brown (10YR 4/2 m); loam; massive; firm; 5% coarse fragments; very few roots.

ANALYSIS OF SOIL AT SITE M78-7

Horizon	Particle Size Distribution (%)									pH	pH
	Sand	VCS	CS	MS	FS	VFS	Silt	Clay	Fine C	CaCl2	H2O
LF	-	-	-	-	-	-	-	-	-	4.2	4.6
Aegj	56	tr	5	15	24	11	38	6	-	3.2	3.9
ABgj	59	1	4	15	26	13	31	10	-	3.8	4.5
Bmgj	57	tr	4	15	26	11	35	8	-	4.1	4.9
Btj	42	tr	4	11	18	9	38	20	-	4.2	4.5
C	41	1	4	11	17	8	35	24	-	4.2	4.6

Horizon	CaCO3 eq. (%)	Org. C (%)	Total N (%)	C/N	E.C. (mS/cm)	Sat. H2O (%)	Cations in Saturation Extract (me/l)			
							Na	K	Ca	Mg
LF	-	35.09	1.79	20	-	-	-	-	-	-
Aegj	-	1.53	0.10	15	-	-	-	-	-	-
ABgj	-	0.82	0.06	14	-	-	-	-	-	-
Bmgj	-	0.36	0.03	12	-	-	-	-	-	-
Btj	-	0.24	0.03	8	-	-	-	-	-	-
C	-	-	-	-	-	-	-	-	-	-

Hori.	TEC (me/100g)	Exchange Cations (me/100g)				Base Sat. (%)	Perm. Charge CEC (me/100g)				Base Sat. (%)
		Na	K	Ca	Mg		Al	Ca	Mg	Total	
LF	76.1	0.1	3.2	37.0	6.9	62	-	-	-	-	-
Aegj	7.8	0.02	0.2	1.2	0.7	26	-	-	-	-	-
ABgj	9.3	0.02	0.1	1.2	0.7	22	-	-	-	-	-
Bmgj	5.8	0.04	0.1	1.4	0.6	36	-	-	-	-	-
Btj	14.3	0.1	0.2	5.9	2.3	59	-	-	-	-	-
C	16.1	0.1	0.2	7.6	3.1	68	-	-	-	-	-

DESCRIPTION OF A PROFILE IN THE KINOSIS SOIL GROUP - SITE M78-8

Soil Unit:	KNS1
Location:	NE31-83-6-W4
Classification:	Orthic Gray Luvisol
Landform:	
Genetic Material:	Morainal; fine-loamy
Surface Expression:	Hummocky; moderate and strong slopes
Site Features:	Upper slope position; west aspect; well-drained; medium perviousness; slightly stony
Vegetation:	Upland aspen forest; aspen

Profile Description:

LFH - 7 to 0 cm; black; slightly to well decomposed leaves; plentiful, very fine to coarse, horizontal roots; abrupt, wavy boundary.

Ae1 - 0 to 10 cm; light gray (10YR 7/2 m); sandy loam; weak, medium platy; very friable; few, fine to coarse, horizontal roots; 5% coarse fragments; gradual, smooth boundary.

Ae2 - 10 to 22 cm; pale brown (10YR 6/3 m); fine sandy loam; moderate, medium platy; very friable; few, fine to coarse, oblique roots; 5% coarse fragments; clear, wavy boundary.

AB - 22 to 30 cm; brown (10YR 5/3 m); loam; moderate, medium platy to weak, fine subangular blocky; friable; very few, fine to coarse roots; 5% coarse fragments; wavy boundary.

Bt - 30 to 50 cm; dark yellowish brown (10YR 3/6 m); loam; strong, fine subangular blocky; firm; very few roots; 5% coarse fragments; clear, wavy boundary.

BC - 50 to 70 cm; dark brown (10YR 3/3 m); sandy clay loam; moderate, medium subangular blocky; firm; very few roots; 5% coarse fragments; gradual, smooth boundary.

C - 70+ cm; dark brown (10YR 3/3 m); loam; massive; firm; 5% coarse fragments.

ANALYSIS OF SOIL AT SITE M78-8

Horizon	Particle Size Distribution (%)									pH CaCl2	pH H2O
	Sand	VCS	CS	MS	FS	VFS	Silt	Clay	Fine C		
LFH	-	-	-	-	-	-	-	-	-	5.7	6.1
Ae1	68	1	8	24	28	7	31	1	-	4.6	5.3
Ae2	66	1	6	22	28	9	30	4	-	4.9	5.7
AB	49	1	4	13	21	10	31	20	-	5.2	5.7
Bt	46	1	3	10	22	10	30	24	-	5.2	5.6
BC	44	tr	4	11	19	9	30	26	-	5.0	5.4
C	47	tr	4	13	20	10	30	23	-	5.8	6.1

Horizon	CaCO3 eq. (%)	Org. C (%)	Total N (%)	C/N	E.C. (mS/cm)	Sat. H2O (%)	Cations in Saturation Extract (me/l)			
							Na	K	Ca	Mg
LFH	-	36.92	1.52	24	-	-	-	-	-	-
Ae1	-	0.27	0.13	2	-	-	-	-	-	-
Ae2	-	0.13	0.02	7	-	-	-	-	-	-
AB	-	0.23	0.03	8	-	-	-	-	-	-
Bt	-	0.23	0.03	8	-	-	-	-	-	-
BC	-	-	-	-	-	-	-	-	-	-
C	-	-	-	-	-	-	-	-	-	-

Hori.	TEC (me/100g)	Exchange Cations (me/100g)				Base Sat. (%)	Perm. Charge CEC (me/100g)				Base Sat. (%)
		Na	K	Ca	Mg		Al	Ca	Mg	Total	
LFH	76.1	0.1	2.9	63.4	7.7	97	-	-	-	-	-
Ae1	2.8	0.01	0.1	1.7	0.2	71	-	-	-	-	-
Ae2	3.1	0.01	0.1	2.4	0.5	96	-	-	-	-	-
AB	10.5	0.02	0.2	7.6	2.2	95	-	-	-	-	-
Bt	14.8	0.03	0.2	9.7	3.7	92	-	-	-	-	-
BC	15.3	0.04	0.2	9.4	3.8	88	-	-	-	-	-
C	13.1	0.1	0.2	9.5	3.6	100	-	-	-	-	-

DESCRIPTION OF A PROFILE IN THE KINOSIS SOIL GROUP - SITE M78-10

Soil Unit: KNS1

Location: SW32-92-4-W4

Classification: Orthic Gray Luvisol

Landform:

  Genetic Material: Morainal; fine-loamy

  Surface Expression: Undulating, gentle slopes

Site Features: Midslope position; northeast aspect; moderately well drained; medium to high perviousness; moderately stony

Vegetation: Upland mixed coniferous forest; black spruce, Labrador tea, jack pine, cowberry, feathermosses, lichens

Profile Description:

LF - 6 to 0 cm; light and dark brown; mainly slightly decomposed needles, mosses and lichens; plentiful, fine to coarse, horizontal roots; clear, wavy boundary.

Ae - 0 to 16 cm; light gray (10YR 7/1 m); fine sandy loam; moderate, fine platy; very friable; plentiful, fine and medium, horizontal roots; 10% coarse fragments; clear, wavy boundary.

Bt1 - 16 to 34 cm; dark yellowish brown (10YR 4/4 m); loam; moderate, medium subangular blocky; friable; few, fine and medium, oblique roots; 10% coarse fragments; gradual, wavy boundary.

Bt2 - 34 to 42 cm; brown (10YR 4/3 m); loam; weak, medium subangular blocky; friable; few, fine, oblique roots; 10% coarse fragments; gradual, wavy boundary.

BC - 42 to 70 cm; dark brown (10YR 3/3 m); loam; weak, medium, subangular blocky; firm; very few, fine, roots; 10% coarse fragments; gradual, smooth boundary.

C - 70 to 110+ cm; very dark grayish brown (10YR 3/3 m); loam; very weak, medium subangular blocky; firm; very few roots; 10% coarse fragments.

ANALYSIS OF SOIL AT SITE M78-10

Horizon	Particle Size Distribution (%)									pH	pH
	Sand	VCS	CS	MS	FS	VFS	Silt	Clay	Fine C	CaCl2	H2O
LF	-	-	-	-	-	-	-	-	-	3.1	3.7
Ae	48	tr	6	16	17	9	48	4	-	3.7	4.6
Bt1	47	1	5	15	18	8	33	20	-	4.0	4.6
Bt2	47	1	6	15	18	7	32	21	-	4.1	4.6
BC	51	1	5	16	20	8	31	18	-	4.2	4.7
C	50	1	6	16	18	8	33	17	-	4.7	5.2

Horizon	CaCO3 eq. (%)	Org. C (%)	Total N (%)	C/N	E.C. (mS/ cm)	Sat. H2O (%)	Cations in Saturation Extract (me/l)			
							Na	K	Ca	Mg
LF	-	33.23	0.82	40	-	-	-	-	-	-
Ae	-	0.32	0.03	11	-	-	-	-	-	-
Bt1	-	0.41	0.04	10	-	-	-	-	-	-
Bt2	-	0.20	0.02	10	-	-	-	-	-	-
BC	-	0.18	0.02	9	-	-	-	-	-	-
C	-	-	-	-	-	-	-	-	-	-

Hori.	TEC (me/ 100g)	Exchange Cations (me/100g)				Base Sat. (%)	Perm. Charge CEC (me/100g)				Base Sat. (%)
		Na	K	Ca	Mg		Al	Ca	Mg	Total	
LF	73.2	0.6	2.3	7.7	0.3	15	-	-	-	-	-
Ae	4.1	0.01	0.1	0.5	0.2	20	-	-	-	-	-
Bt1	13.1	0.05	0.2	2.6	1.1	30	-	-	-	-	-
Bt2	13.7	0.05	0.2	3.8	2.1	45	-	-	-	-	-
BC	12.0	0.03	0.2	4.1	2.3	55	-	-	-	-	-
C	11.7	0.04	0.2	6.0	3.3	82	-	-	-	-	-

DESCRIPTION OF A PROFILE IN THE LEGEND SOIL GROUP - SITE M77-30

Soil Unit:	LGD1
Location:	NW9-100-12-W4
Classification:	Orthic Gray Luvisol
Landform:	
Genetic Material:	Morainal; fine-loamy
Surface Expression:	Hummocky, moderate slopes
Site Features:	Upper slope position; southeast aspect; moderately well drained; medium perviousness; moderately stony
Vegetation:	Upland mixed coniferous forest; jack pine, black spruce, Labrador tea, lichens

Profile Description:

LFH	-	4 to 0 cm; slightly to moderately decomposed needles and lichens; clear, wavy boundary.
Ae	-	0 to 6 cm; light brownish gray (10YR 6/2 d; 10YR 4/2 m); silt loam; weak, medium platy; very friable; less than 10% coarse fragments; clear, wavy boundary.
Bt1	-	6 to 21 cm; light yellowish brown (10YR 6/4 d; 10YR 4/4 m); loam; weak, fine subangular blocky; soft; less than 10% coarse fragments; gradual, smooth boundary.
Bt2	-	21 to 45 cm; pale brown (10YR 6/3 d; 10YR 4/4 m); loam; moderate, medium subangular blocky; firm; less than 10% coarse fragments; diffuse, smooth boundary.
C	-	45 to 65 cm; (10YR 5/3.5 d; 10YR 3/3 m); loam; massive; firm; less than 10% coarse fragments.

ANALYSIS OF SOIL AT SITE M77-30

Horizon	Particle Size Distribution (%)									pH	pH
	Sand	VCS	CS	MS	FS	VFS	Silt	Clay	Fine C	CaCl2	H2O
LFH	-	-	-	-	-	-	-	-	-	4.4	4.6
Ae	38	1	6	15	11	5	56	6	2	4.2	4.8
Bt1	41	tr	5	18	14	4	39	20	9	4.6	5.0
Bt2	48	2	7	16	17	6	30	22	13	6.0	6.5
C	52	3	8	17	17	7	27	21	13	5.6	5.6

Horizon	CaCO3 eq. (%)	Org. C (%)	Total N (%)	C/N	E.C. (mS/cm)	Sat. H2O (%)	Cations in Saturation Extract (me/l)			
							Na	K	Ca	Mg
LFH	-	31.06	1.05	30	-	-	-	-	-	-
Ae	-	1.41	0.06	24	0.1	51	0.3	0.2	1.1	0.4
Bt1	-	0.46	0.04	12	0.1	40	0.3	0.07	0.6	0.2
Bt2	-	0.27	0.04	7	0.5	46	0.4	0.1	4.2	1.8
C	0.2	-	-	-	0.2	40	0.4	0.05	1.4	0.8

Hori.	TEC (me/100g)	Exchange Cations (me/100g)				Base Sat. (%)	Perm. Charge CEC (me/100g)				Base Sat. (%)
		Na	K	Ca	Mg		Al	Ca	Mg	Total	
LFH	71.3	0.1	2.5	16.7	2.6	31	2.8	25.0	7.8	35.6	92
Ae	7.7	0.1	0.2	2.0	0.5	36	0.9	2.3	0.7	3.9	77
Bt1	10.4	0.03	0.2	3.7	1.9	57	1.6	4.5	2.9	9.0	82
Bt2	11.7	0.04	0.3	11.2	3.1	100	0.0	10.0	8.1	18.1	100
C	13.3	0.05	0.3	9.8	7.2	100	0.0	1.5	0.4	1.9	100

DESCRIPTION OF A PROFILE IN THE LEGEND SOIL GROUP - SITE M78-12

Soil Unit:	LGD1
Location:	SE11-97-15-W4
Classification:	Orthic Gray Luvisol (Legend series)
Landform:	
Genetic Material:	Morainal; fine-loamy
Surface Expression:	Ridged (fluted); very gentle and gentle slopes
Site Features:	Upper slope position; northeast aspect; moderately well drained; medium perviousness; moderately stony
Vegetation:	Upland mixed coniferous forest; jack pine, black spruce, Labrador tea, lichens

Profile Description:

LF - 3 to 0 cm; dark brown; slightly to moderately decomposed needles and leaves; clear, smooth boundary.

Ae - 0 to 5 cm; light gray (10YR 6/1 m); fine sandy loam; moderate, coarse platy; very friable; clear, wavy boundary.

AB - 5 to 10 cm; brown (10YR 5/3 m); loam; weak, medium platy to moderate, fine subangular blocky; friable; gradual, wavy boundary.

Bt1 - 10 to 25 cm; yellowish brown (10YR 5/4 m); loam; moderate, fine and medium subangular blocky; firm; gradual, wavy boundary.

Bt2 - 25 to 45 cm; light yellowish brown (10YR 6/4 m); loam; moderate, medium and coarse subangular blocky; firm; gradual, smooth boundary.

Bt3 - 45 to 63 cm; dark yellowish brown (10YR 4/4 m); clay loam; moderate to strong, fine and medium subangular blocky; firm; gradual, smooth boundary.

BC - 63 to 90 cm; brown (10YR 5/3 m); loam; weak to moderate, fine subangular blocky; firm; gradual, smooth boundary.

C - 90 to 120+ cm; brown (10YR 5/3 m); loam; massive; firm.

ANALYSIS OF SOIL AT SITE M78-12

Horizon	Particle Size Distribution (%)									pH	pH
	Sand	VCS	CS	MS	FS	VFS	Silt	Clay	Fine C	CaCl2	H2O
LF	-	-	-	-	-	-	-	-	-	3.4	3.9
Ae	54	1	6	17	22	8	39	7	-	3.6	4.2
AB	49	tr	6	17	19	7	35	16	-	3.8	4.6
Bt1	46	1	6	16	17	6	36	18	-	3.7	4.7
Bt2	45	1	6	15	16	7	32	23	-	3.8	4.6
Bt3	44	1	6	15	16	6	27	29	-	4.0	4.8
BC	44	1	7	14	16	6	29	27	-	4.0	4.5
C	46	1	6	16	17	6	28	26	-	4.4	4.9

Horizon	CaCO3 eq. (%)	Org. C (%)	Total N (%)	C/N	E.C. (mS/cm)	Sat. H2O (%)	Cations in Saturation Extract (me/l)			
							Na	K	Ca	Mg
LF	-	24.85	0.55	45	-	-	-	-	-	-
Ae	-	1.07	0.06	18	-	-	-	-	-	-
AB	-	0.66	0.05	13	-	-	-	-	-	-
Bt1	-	0.19	0.03	6	-	-	-	-	-	-
Bt2	-	0.09	0.03	3	-	-	-	-	-	-
Bt3	-	0.12	0.03	4	-	-	-	-	-	-
BC	-	-	-	-	-	-	-	-	-	-
C	-	-	-	-	-	-	-	-	-	-

Hori.	TEC (me/100g)	Exchange Cations (me/100g)				Base Sat. (%)	Perm. Charge CEC (me/100g)				Base Sat. (%)
		Na	K	Ca	Mg		Al	Ca	Mg	Total	
LF	42.8	0.05	1.3	8.8	0.9	26	-	-	-	-	-
Ae	8.1	0.02	0.1	1.3	0.2	20	-	-	-	-	-
AB	11.1	0.04	0.2	1.4	0.5	19	-	-	-	-	-
Bt1	8.6	0.04	0.1	1.6	0.7	28	-	-	-	-	-
Bt2	11.1	0.1	0.2	2.8	1.3	39	-	-	-	-	-
Bt3	15.3	0.1	0.2	5.9	2.7	58	-	-	-	-	-
BC	16.1	0.1	0.2	7.1	3.0	65	-	-	-	-	-
C	14.3	0.1	0.3	6.4	2.9	68	-	-	-	-	-

DESCRIPTION OF A PROFILE IN THE LEGEND SOIL GROUP - SITE M78-13

Soil Unit:	LGD1
Location:	SW8-99-14-W4
Classification:	Orthic Gray Luvisol (Legend series)
Landform:	
Genetic Material:	Morainal; fine-loamy
Surface Expression:	Hummocky; gentle slopes
Site Features:	Upper slope position; north aspect; moderately well drained; medium perviousness; moderately and very stony
Vegetation:	Upland mixed coniferous forest; jack pine, black spruce, Labrador tea, blueberry, dwarf birch

Profile Description:

LF	- 3 to 0 cm; dark brown; slightly to moderately decomposed needles and leaves; clear, smooth boundary.
Ae	- 0 to 5 cm; gray (10YR 6/1 m); silt loam; moderate, fine, platy; very friable; 10% coarse fragments; clear, wavy boundary.
AB	- 5 to 14 cm; grayish brown (10YR 5/2 m); loam; moderate, medium subangular blocky; friable; 15% coarse fragments; diffuse, smooth boundary.
Bt1	- 14 to 24 cm; yellowish brown (10YR 5/4 m); loam; moderate, medium subangular blocky; firm; 15% coarse fragments; gradual, smooth boundary.
Bt2	- 24 to 42 cm; dark grayish brown (10YR 4/2 m); clay loam; strong, medium subangular blocky; firm; 15% coarse fragments; gradual, smooth boundary.
BC	- 42 to 77 cm; dark grayish brown (2.5Y 4/2 m); clay loam; moderate, medium subangular blocky; firm to sticky; 15% coarse fragments; gradual, smooth boundary.
C	- 77+ cm; dark grayish brown (2.5Y 4/2 m); loam; massive and layered; firm to sticky; 15% coarse fragments.

ANALYSIS OF SOIL AT SITE M78-13

Horizon	Particle Size Distribution (%)									pH	pH
	Sand	VCS	CS	MS	FS	VFS	Silt	Clay	Fine C	CaCl2	H2O
LF	-	-	-	-	-	-	-	-	-	3.5	4.1
Ae	36	1	5	12	13	5	53	11	-	3.7	4.4
AB	-	-	-	-	-	-	-	-	-	-	-
Bt1	40	1	6	12	14	7	33	27	-	4.4	5.1
Bt2	35	1	5	11	13	5	31	34	-	4.6	5.5
BC	36	1	5	12	13	5	31	33	-	5.0	5.5
C	45	3	7	15	14	6	29	26	-	5.3	5.7

Horizon	CaCO3 eq. (%)	Org. C (%)	Total N (%)	C/N	E.C. (mS/cm)	Sat. H2O (%)	Cations in Saturation Extract (me/l)			
							Na	K	Ca	Mg
LF	-	25.77	0.86	30	-	-	-	-	-	-
Ae	-	1.07	0.07	15	-	-	-	-	-	-
AB	-	-	-	-	-	-	-	-	-	-
Bt1	-	0.31	0.03	10	-	-	-	-	-	-
Bt2	-	0.36	0.03	12	-	-	-	-	-	-
BC	-	-	-	-	-	-	-	-	-	-
C	-	-	-	-	-	-	-	-	-	-

Hori.	TEC (me/100g)	Exchange Cations (me/100g)				Base Sat. (%)	Perm. Charge CEC (me/100g)				Base Sat. (%)
		Na	K	Ca	Mg		Al	Ca	Mg	Total	
LF	56.7	0.1	1.3	9.3	1.0	21	-	-	-	-	-
Ae	9.0	0.03	0.1	0.8	0.2	13	-	-	-	-	-
AB	-	-	-	-	-	-	-	-	-	-	-
Bt1	14.3	0.04	0.2	6.4	2.8	66	-	-	-	-	-
Bt2	18.1	0.1	0.3	9.6	4.2	78	-	-	-	-	-
BC	19.0	0.1	0.3	9.0	4.8	75	-	-	-	-	-
C	15.3	0.1	0.3	9.8	4.0	93	-	-	-	-	-

DESCRIPTION OF A PROFILE IN THE LEGEND SOIL GROUP - SITE M78-14

Soil Unit:	LGD1
Location:	NE13-100-15-W4
Classification:	Orthic Gray Luvisol (Legend series)
Landform:	
Genetic Material:	Morainal; fine-loamy
Surface Expression:	Ridged; gentle and moderate slopes
Site Features:	Upper slope position; northwest aspect; well drained; medium perviousness; moderately stony
Vegetation:	Upland mixed coniferous forest; jack pine, black spruce, Labrador tea, green alder, bearberry, cowberry, feathermoss, lichens

Profile Description:

LFH - 4 to 0 cm; dark brown to black; moderately decomposed leaves and needles.

Ae - 0 to 6 cm; light gray (10YR 7/2 m); sandy loam; moderate, fine platy; very friable; 15% coarse fragments; clear, wavy boundary.

AB - 6 to 18 cm; brown (7.5YR 4.5/4 m); loam; weak, fine platy, and moderate, fine subangular blocky; friable; 15% coarse fragments; gradual, wavy boundary.

Bt1 - 18 to 36 cm; dark yellowish brown (10YR 4/4 m); clay loam; moderate, medium subangular blocky; firm; 15% coarse fragments; gradual, smooth boundary.

Bt2 - 36 to 62 cm; dark yellowish brown (10YR 4/4 m); clay loam; moderate, coarse subangular blocky; firm; 15% coarse fragments; gradual, smooth boundary.

BC - 62 to 80 cm; very dark grayish brown (2.5Y 3/2 m); clay loam; strong, coarse subangular blocky; firm; 15% coarse fragments; gradual, smooth boundary.

IIC - 80+ cm; light olive gray (5Y 6/2 d); olive gray (5Y 4/2 m); heavy clay; very firm.

ANALYSIS OF SOIL AT SITE M78-14

Horizon	Particle Size Distribution (%)									pH	pH
	Sand	VCS	CS	MS	FS	VFS	Silt	Clay	Fine C	CaCl2	H2O
LFH	-	-	-	-	-	-	-	-	-	3.6	4.1
Ae	56	1	8	22	19	6	39	5	-	3.8	4.4
AB	48	1	5	16	20	6	28	24	-	4.2	4.8
Bt1	40	1	5	14	15	5	28	32	-	4.2	4.7
Bt2	40	tr	7	15	14	4	28	32	-	4.2	4.8
BC	44	2	8	17	13	4	26	30	-	4.4	4.8
IIC	-	-	-	-	-	-	34	66	-	3.7	4.7

Horizon	CaCO3 eq. (%)	Org. C (%)	Total N (%)	C/N	E.C. (mS/ cm)	Sat. H2O (%)	Cations in Saturation Extract (me/l)			
							Na	K	Ca	Mg
LFH	-	37.12	1.30	29	-	-	-	-	-	-
Ae	-	0.38	0.03	13	-	-	-	-	-	-
AB	-	0.60	0.05	12	-	-	-	-	-	-
Bt1	-	0.36	0.07	9	-	-	-	-	-	-
Bt2	-	0.31	0.03	10	-	-	-	-	-	-
BC	-	-	-	-	-	-	-	-	-	-
IIC	-	-	-	-	-	-	-	-	-	-

Hori.	TEC (me/ 100g)	Exchange Cations (me/100g)				Base Sat. (%)	Perm. Charge CEC (me/100g)				Base Sat. (%)
		Na	K	Ca	Mg		Al	Ca	Mg	Total	
LFH	87.0	0.1	1.8	19.3	2.9	28	-	-	-	-	-
Ae	4.3	0.01	0.1	1.0	0.2	30	-	-	-	-	-
AB	14.3	0.1	0.2	5.1	1.8	50	-	-	-	-	-
Bt1	19.0	0.1	0.2	7.2	3.3	57	-	-	-	-	-
Bt2	19.6	0.1	0.3	8.4	4.1	66	-	-	-	-	-
BC	18.1	0.1	0.2	9.3	4.3	77	-	-	-	-	-
IIC	39.2	0.5	1.0	6.1	3.4	28	-	-	-	-	-

DESCRIPTION OF A PROFILE IN THE LEGEND SOIL GROUP - SITE M78-15

Soil Unit: LGD1

Location: SW8-100-15-W4

Classification: Gleyed Gray Luvisol (Legend series)

Landform:

Genetic Material: Morainal; fine-clayey

Surface Expression: Hummocky and rolling; gentle slopes

Site Features: Upper slope position; southeast aspect; moderately well drained; perviousness; slightly stony

Vegetation: Upland mixed coniferous forest; jack pine, green alder, black spruce, Labrador tea, cowberry, bunchberry, northern commandra

Profile Description:

LF - 4 to 0 cm; dark brown; slightly to moderately decomposed.

Ae - 0 to 3 cm; dark gray (10YR 4/1 m); silty clay; strong, fine granular; friable to sticky; very few coarse fragments; gradual, wavy boundary.

Btj - 3 to 21 cm; brown (10YR 5/3 m) and dark gray (10YR 4/1 m); heavy clay; strong, fine and medium granular; friable to sticky; upper part is mixed with tongues of Ae; very weak cutan development; some charcoal-like particles present; gradual, smooth boundary.

Bmgj - 21 to 50 cm; grayish brown (2.5Y 5/2 m); loam; moderate, fine granular; very sticky; very few coarse fragments; gradual, smooth boundary.

BCgj - 50 to 68 cm; dark grayish brown (2.5Y 4/2 m); heavy clay; moderate, fine granular; very sticky, very few coarse fragments; gradual, wavy boundary.

Cgj - 68 to 80 cm; very dark gray (5Y 3/1 m); silty clay; moderate, fine fine granular; very sticky; very few coarse fragments.

ANALYSIS OF SOIL AT SITE M78-15

Horizon	Particle Size Distribution (%)									pH	pH
	Sand	VCS	CS	MS	FS	VFS	Silt	Clay	Fine C	CaCl2	H2O
LF	-	-	-	-	-	-	-	-	-	3.8	4.2
Ae	1	-	-	-	-	-	46	53	-	3.8	4.3
Btj	1	-	-	-	-	-	38	61	-	4.0	4.6
Bmgj	40	2	8	14	12	4	41	19	-	4.2	5.1
BCgj	-	-	-	-	-	-	37	63	-	3.7	4.8
Cgj	-	-	-	-	-	-	43	57	-	3.8	4.3

Horizon	CaCO3 eq. (%)	Org. C (%)	Total N (%)	C/N	E.C. (mS/cm)	Sat. H2O (%)	Cations in Saturation Extract (me/l)			
							Na	K	Ca	Mg
LF	-	27.69	0.86	32	-	-	-	-	-	-
Ae	-	3.39	0.21	16	-	-	-	-	-	-
Btj	-	0.77	0.11	7	-	-	-	-	-	-
Bmgj	-	0.40	0.04	10	-	-	-	-	-	-
BCgj	-	-	-	-	-	-	-	-	-	-
Cgj	-	-	-	-	-	-	-	-	-	-

Hori.	TEC (me/100g)	Exchange Cations (me/100g)				Base Sat. (%)	Perm. Charge CEC (me/100g)				Base Sat. (%)
		Na	K	Ca	Mg		Al	Ca	Mg	Total	
LF	79.1	1.3	3.0	16.4	2.6	29	1.7	57.5	9.9	69.1	98
Ae	45.1	0.1	1.5	5.4	2.5	21	8.9	13.8	4.0	26.7	67
Btj	36.3	0.1	1.1	5.2	3.0	26	9.6	14.4	5.4	28.7	69
Bmgj	9.8	0.03	0.1	2.5	1.1	38	1.9	5.4	1.7	9.0	79
BCgj	39.2	0.5	0.9	6.3	3.6	29	11.5	16.9	5.7	34.1	66
Cgj	39.2	0.5	0.9	6.2	3.2	28	11.5	17.5	6.0	35.0	67

DESCRIPTION OF A PROFILE IN THE LEGEND SOIL GROUP - SITE M78-16

Soil Unit:	LGD1
Location:	NE18-100-16-W4
Classification:	Orthic Gray Luvisol
Landform:	
Genetic Material:	Morainal; fine-loamy
Surface Expression:	Ridged; gentle slopes
Site Features:	Upper slope position; north aspect; moderately well drained; medium perviousness; moderately stony
Vegetation:	Upland mixed coniferous forest; jack pine, black spruce, Labrador tea, cowberry, lichens, feathermosses

Profile Description:

LF - 5 to 0 cm; dark brown; slightly to moderately decomposed.

Ae - 0 to 9 cm; dark gray (10YR 4/1 m); loam; strong, coarse platy; friable; 10% coarse fragments; gradual, wavy boundary.

AB - 9 to 17 cm; dark yellowish brown (10YR 4.5/4 m); clay loam; moderate, coarse platy, and strong, fine subangular blocky; friable; 10% coarse fragments; gradual, smooth boundary.

Bt1 - 17 to 48 cm; dark yellowish brown (10YR 4/4 m); clay loam; strong, fine subangular blocky; friable; 10% coarse fragments; gradual, smooth boundary.

Bt2 - 48 to 64 cm; dark yellowish brown (10YR 4/4 m); clay loam; weak, medium subangular blocky; friable; 10% coarse fragments; gradual, smooth boundary.

BC - 64 to 80 cm; dark brown (10YR 3/3 m); clay loam; weak, medium subangular blocky; slightly sticky; 10% coarse fragments; diffuse, smooth boundary.

C - 80 to 120 cm; dark brown (10YR 3/3 m); clay loam; massive, breaking to weak, fine subangular blocky; sticky; 10% coarse fragments.

ANALYSIS OF SOIL AT SITE M78-16

Horizon	Particle Size Distribution (%)									pH	pH
	Sand	VCS	CS	MS	FS	VFS	Silt	Clay	Fine C	CaCl2	H2O
LF	-	-	-	-	-	-	-	-	-	3.3	3.8
Ae	42	1	6	16	14	5	44	14	-	3.5	4.1
AB	31	1	5	10	12	5	41	28	-	4.1	4.8
Bt1	35	1	6	13	11	4	33	32	-	3.9	4.4
Bt2	37	1	5	13	13	5	32	31	-	3.9	4.4
BC	31	1	5	11	10	4	36	33	-	3.9	4.4
C	31	1	4	11	11	4	35	34	-	3.9	4.4

Horizon	CaCO3 eq. (%)	Org. C (%)	Total N (%)	C/N	E.C. (mS/cm)	Sat. H2O (%)	Cations in Saturation Extract (me/l)			
							Na	K	Ca	Mg
LF	-	44.51	1.15	39	-	-	-	-	-	-
Ae	-	1.50	0.08	19	-	-	-	-	-	-
AB	-	0.68	0.07	10	-	-	-	-	-	-
Bt1	-	0.40	0.06	7	-	-	-	-	-	-
Bt2	-	0.34	0.05	7	-	-	-	-	-	-
BC	-	-	-	-	-	-	-	-	-	-
C	-	-	-	-	-	-	-	-	-	-

Hori.	TEC (me/100g)	Exchange Cations (me/100g)				Base Sat. (%)	Perm. Charge CEC (me/100g)				Base Sat. (%)
		Na	K	Ca	Mg		Al	Ca	Mg	Total	
LF	90.8	0.2	2.5	15.0	1.8	21	-	-	-	-	-
Ae	14.3	0.03	0.3	1.2	0.5	15	-	-	-	-	-
AB	15.3	0.03	0.3	3.8	1.8	39	-	-	-	-	-
Bt1	18.1	0.05	0.4	3.8	2.3	36	-	-	-	-	-
Bt2	16.7	0.1	0.2	3.9	2.2	38	-	-	-	-	-
BC	19.0	0.1	0.2	4.4	2.7	39	-	-	-	-	-
C	19.0	0.1	0.3	4.8	2.9	43	-	-	-	-	-

DESCRIPTION OF A PROFILE IN THE LEGEND SOIL GROUP - SITE M78-18

Soil Unit:	LGD1
Location:	NW20-102-13-W4
Classification:	Orthic Gray Luvisol
Landform:	
Genetic Material:	Morainal; coarse-loamy overlying sandy ice-contact materials
Surface Expression:	Hummocky; moderate slopes
Site Features:	Midslope position; southwest aspect well-drained; high perviousness; very stony; slightly eroded by water; high point in land - possibly a kame complex
Vegetation:	Upland mixed coniferous forest; jack pine, black spruce, green alder, lichens

Profile Description:

LF - 2 to 0 cm; dark brown; slightly to moderately decomposed needles and lichens.

Ae1 - 0 to 9 cm; dark grayish brown (10YR 4/2 m); sandy loam; single grain to weak, coarse platy; very friable; 10% coarse fragments; gradual, wavy boundary.

Ae2 - 9 to 22 cm; dark grayish brown (10YR 4.5/2 m); fine sandy loam; weak, fine subangular blocky; very friable; 10% coarse fragments; clear, wavy boundary.

Bt1 - 22 to 40 cm; dark yellowish brown (10YR 4.5/6 m); fine sandy loam; weak, fine subangular blocky; very friable; 10% coarse fragments; clear, wavy boundary.

Bt2 - 40 to 65 cm; yellowish brown (10YR 5/5 m); fine sandy loam; weak, fine subangular blocky; very friable; 10% coarse fragments; gradual, smooth boundary.

BC - 65 to 90 cm; strong brown (7.5YR 5.5/8 m); sand; single grain; loose; 5% coarse fragments; gradual, smooth boundary.

C - 90 to 120 cm; strong brown (10YR 5/6 m); sand laminated; single grain; loose; 5% coarse fragments.

ANALYSIS OF SOIL AT SITE M78-18

Horizon	Particle Size Distribution (%)									pH CaCl2	pH H2O
	Sand	VCS	CS	MS	FS	VFS	Silt	Clay	Fine C		
LF	-	-	-	-	-	-	-	-	-	3.3	4.1
Ae1	66	1	7	24	26	8	29	5	-	3.9	4.5
Ae2	51	1	7	19	18	6	47	2	-	4.2	5.0
Bt1	56	1	6	19	22	8	30	14	-	4.5	5.2
Bt2	55	2	3	13	23	14	34	11	-	4.3	5.1
BC	95	1	15	55	22	2	4	1	-	4.5	5.5
C	99	tr	14	47	35	2	1	-	-	4.6	5.4

Horizon	CaCO3 eq. (%)	Org. C (%)	Total N (%)	C/N	E.C. (mS/cm)	Sat. H2O (%)	Cations in Saturation Extract (me/l)			
							Na	K	Ca	Mg
LF	-	37.17	0.90	41	-	-	-	-	-	-
Ae1	-	0.81	0.03	27	-	-	-	-	-	-
Ae2	-	0.46	0.03	15	-	-	-	-	-	-
Bt1	-	0.23	0.01	23	-	-	-	-	-	-
Bt2	-	0.13	0.01	13	-	-	-	-	-	-
BC	-	-	-	-	-	-	-	-	-	-
C	-	-	-	-	-	-	-	-	-	-

Hori.	TEC (me/100g)	Exchange Cations (me/100g)				Base Sat. (%)	Perm. Charge CEC (me/100g)				Base Sat. (%)
		Na	K	Ca	Mg		Al	Ca	Mg	Total	
LF	60.6	0.1	1.0	5.2	0.3	11	6.7	40.0	7.8	54.5	88
Ae1	7.3	0.01	0.1	0.2	0.05	5	1.4	1.5	0.4	13.3	58
Ae2	5.1	0.00	0.1	0.2	0.1	7	1.6	1.2	0.3	3.1	48
Bt1	12.0	0.05	0.2	2.3	1.0	29	1.9	7.6	3.7	13.2	86
Bt2	7.6	0.5	0.1	1.9	1.1	47	1.2	4.8	2.5	8.5	86
BC	1.8	0.02	0.03	0.4	0.3	42	0.2	1.9	0.5	2.6	92
C	1.5	0.03	0.02	0.5	0.4	63	0.1	0.6	0.3	1.0	10

DESCRIPTION OF A PROFILE IN THE LEGEND SOIL GROUP - SITE M78-19

Soil Unit: LGD1

Location: SW25-104-15-W4

Classification: Gleyed Gray Luvisol

Landform:

- Genetic Material: Morainal; fine-loamy
- Surface Expression: Ridged (fluted); gentle slopes

Site Features: Upper slope position, northwest aspect; moderately well drained; medium perviousness; slightly stony

Vegetation: Upland mixed coniferous forest; jack pine, black spruce, Labrador tea, blueberry, dwarf birch, cowberry, lichens

Profile Description:

LF - 6 to 0 cm; dark brown; slightly to moderately decomposed leaves, needles and lichens; plentiful, very fine to coarse, horizontal roots; clear, wavy boundary.

Ae - 0 to 7 cm; gray (10YR 6/1 m); loam; moderate, medium platy; friable; plentiful, very fine to coarse, horizontal roots; 5% coarse fragments; clear, wavy boundary.

Bt1 - 7 to 24 cm; yellowish brown (10YR 5/4 m); clay loam; moderate, fine subangular blocky; friable; few, fine to coarse, oblique roots; 5% coarse fragments; diffuse, wavy boundary.

Bt2 - 24 to 46 cm; yellowish brown (10YR 5/4 m); clay; strong, fine subangular blocky; firm; few, fine to coarse, oblique roots; 5% coarse fragments; diffuse, wavy boundary.

Bt3 - 46 to 64 cm; brown (10YR 5/3 m); clay loam; moderate, medium subangular blocky; sticky; 5% coarse fragments; clear, wavy boundary.

BC - 64 to 89 cm; grayish brown (10YR 5/3 m); clay loam; moderate, medium subangular blocky; sticky; very few roots; 5% coarse fragments; diffuse, smooth boundary.

Cgj - 89+ cm; gray (10YR 5/1 m); clay loam; very weak, fine and medium subangular blocky; sticky; 5% coarse fragments.

ANALYSIS OF SOIL AT SITE M78-19

Horizon	Particle Size Distribution (%) Sand	VCS	CS	MS	FS	VFS	Silt	Clay	Fine C	pH CaCl2	pH H2O
LF	-	-	-	-	-	-	-	-	-	3.7	3.8
Ae	38	1	5	13	14	4	45	17	-	3.3	3.9
Bt1	26	tr	4	8	9	4	41	33	-	3.9	4.7
Bt2	24	1	3	7	8	5	36	40	-	3.8	4.3
Bt3	25	1	4	8	9	3	37	38	-	3.8	4.2
BC	27	1	4	9	9	4	38	35	-	3.8	4.4
Cgj	27	1	4	8	9	5	39	34	-	3.9	4.8

Horizon	CaCO3 eq. (%)	Org. C (%)	Total N (%)	C/N	E.C. (mS/cm)	Sat. H2O (%)	Cations in Saturation Extract (me/l) Na	K	Ca	Mg
LF	-	40.99	0.97	42	-	-	-	-	-	-
Ae	-	1.85	0.11	17	-	-	-	-	-	-
Bt1	-	0.77	0.07	11	-	-	-	-	-	-
Bt2	-	0.49	0.06	8	-	-	-	-	-	-
Bt3	-	0.51	0.06	9	-	-	-	-	-	-
BC	-	-	-	-	-	-	-	-	-	-
Cgj	-	-	-	-	-	-	-	-	-	-

Hori.	TEC (me/100g)	Exchange Cations (me/100g) Na	K	Ca	Mg	Base Sat. (%)	Perm. Charge CEC (me/100g) Al	Ca	Mg	Total	Base Sat. (%)
LF	86.4	0.1	1.6	5.8	0.8	10	3.9	30.0	9.9	43.8	91
Ae	22.5	0.02	0.3	1.0	0.5	8	5.4	2.5	1.4	9.3	42
Bt1	22.5	0.1	0.3	1.5	0.5	10	7.0	3.3	1.7	12.0	42
Bt2	25.5	0.1	0.6	2.6	0.9	16	6.3	3.8	1.8	11.9	47
Bt3	24.3	0.1	0.5	3.2	1.1	20	3.0	5.4	2.0	10.4	71
BC	23.1	0.1	0.4	4.4	1.3	27	7.9	7.5	3.0	18.4	57
Cgj	22.5	0.1	0.4	5.1	1.2	30	7.4	10.0	4.0	21.4	65

DESCRIPTION OF A PROFILE IN THE LEGEND SOIL GROUP - SITE M78-20

Soil Unit	LGD1
Location:	NE23-103-18-W4
Classification:	Orthic Gray Luvisol
Landform:	
Genetic Material:	Morainal; fine-clayey
Surface Expression:	Undulating; very gentle slopes
Site Features:	Midslope position; southwest aspect; imperfectly drained; medium perviousness; slightly stony
Vegetation:	Upland mixed coniferous forest; black spruce, jack pine, Labrador tea, blueberry, cowberry, crowberry, lichens, feathermosses

Profile Description:

LF - 3 to 0 cm; brown; slightly to moderately decomposed needles and lichens; few, fine to coarse, horizontal roots; clear, wavy boundary.

Ae - 0 to 7 cm; dark gray (10YR 4.1/5 m); silt loam; strong, fine and medium platy; friable; few coarse fragments; few, fine and medium, horizontal roots; clear, wavy to irregular boundary.

Bt1 - 7 to 23 cm; yellowish brown (10YR 5/4 m); clay loam; strong, fine subangular blocky; sticky; few coarse fragments; few, fine and medium, oblique roots; clear, smooth boundary.

Bt2 - 23 to 35 cm; yellowish brown (10YR 5/4 m); silty clay; strong, medium and fine subangular blocky; sticky; few coarse fragments; very few, fine to coarse, oblique roots; gradual, smooth boundary.

Bt3 - 35 to 48 cm; dark grayish brown (2.5Y 4/2 m); silty clay; strong, medium subangular blocky; sticky; few coarse fragments; very few, fine and medium, oblique roots; gradual, smooth boundary.

BC - 48 to 59 cm; dark gray (10YR 4.1/5 m); silty clay; moderate, medium subangular blocky; sticky; few coarse fragments; very few roots; gradual, smooth boundary.

C - 59+ cm; dark grayish brown (10YR 4/2.5 m); silty clay; massive; firm; few coarse fragments.

ANALYSIS OF SOIL AT SITE M78-20

Horizon	Particle Size Distribution (%)									pH CaCl2	pH H2O
	Sand	VCS	CS	MS	FS	VFS	Silt	Clay	Fine C		
LF	-	-	-	-	-	-	-	-	-	3.3	4.0
Ae	13	tr	2	4	4	3	75	12	-	3.3	3.9
Bt1	21	tr	3	8	7	2	41	38	-	3.9	4.6
Bt2	3	-	-	-	-	-	50	47	-	3.8	4.5
Bt3	9	-	-	-	-	-	41	50	-	3.8	4.3
BC	10	-	-	-	-	-	46	44	-	3.7	4.4
C	15	1	2	5	5	2	43	42	-	3.8	4.5

Horizon	CaCO3 eq. (%)	Org. C (%)	Total N (%)	C/N	E.C. (mS/cm)	Sat. H2O (%)	Cations in Saturation Extract (me/l)			
							Na	K	Ca	Mg
LF	-	47.42	0.86	55	-	-	-	-	-	-
Ae	-	2.08	0.11	19	-	-	-	-	-	-
Bt1	-	0.77	0.08	10	-	-	-	-	-	-
Bt2	-	0.60	0.09	7	-	-	-	-	-	-
Bt3	-	0.60	0.09	7	-	-	-	-	-	-
BC	-	0.65	0.09	-	-	-	-	-	-	-
C	-	0.69	0.08	-	-	-	-	-	-	-

Hori.	TEC (me/100g)	Exchange Cations (me/100g)				Base Sat. (%)	Perm. Charge CEC (me/100g)				Base Sat. (%)
		Na	K	Ca	Mg		Al	Ca	Mg	Total	
LF	116.7	0.02	2.4	1.8	1.8	5	0.6	10.0	4.9	15.5	96
Ae	18.1	0.02	0.4	1.0	0.4	10	7.6	2.9	1.3	11.8	36
Bt1	22.5	0.03	0.3	1.6	0.7	12	7.8	4.2	2.3	14.3	45
Bt2	24.3	0.04	0.5	2.6	1.0	17	8.0	3.8	2.2	14.0	43
Bt3	24.3	0.1	0.4	2.7	1.2	18	5.9	6.9	2.5	15.3	61
BC	25.5	0.05	0.5	3.0	1.2	19	8.0	5.8	2.9	16.7	52
C	25.5	0.1	0.5	4.6	1.7	27	7.7	7.5	3.4	18.6	59

DESCRIPTION OF A PROFILE IN THE LEGEND SOIL GROUP - SITE M78-21

Soil Unit:	LGD1
Location:	NE29-97-18-W4
Classification:	Orthic Gray Luvisol
Landform:	
Genetic Material:	Morainal; fine-clayey
Surface Expression:	Hummocky; moderate slopes
Site Features:	Upper slope position; southeast aspect; moderately well drained; medium perviousness; moderately stony
Vegetation:	Upland coniferous forest; white spruce, various shrubs, grasses

Profile Description:

LF - 12 to 0 cm; brown; slightly to moderately decomposed leaves; clear, wavy boundary.

Ae - 0 to 10 cm; gray (10YR 5/1 m); silt loam; strong, medium platy; friable; 10% coarse fragments; clear, wavy boundary.

AB - 10 to 15 cm; grayish brown (10YR 5/2 m); silt loam; moderate, fine subangular blocky; firm; 10% coarse fragments; diffuse, smooth boundary.

Bt1 - 15 to 35 cm; yellowish brown (10YR 5/4 m); clay loam; strong, fine subangular blocky; firm; 10% coarse fragments; diffuse, smooth boundary.

Bt2 - 35 to 60 cm; yellowish brown (10YR 5/4 m); clay; strong, medium subangular blocky; firm; 10% coarse fragments; diffuse, smooth boundary.

C - 60 to 100 cm; very dark grayish brown (10YR 3/2 m); silty clay; massive; firm; 10% coarse fragments.

ANALYSIS OF SOIL AT SITE M78-21

Horizon	Particle Size Distribution (%)									pH $CaCl_2$	pH H_2O
	Sand	VCS	CS	MS	FS	VFS	Silt	Clay	Fine C		
LF	-	-	-	-	-	-	-	-	-	4.7	5.1
Ae	26	2	5	8	8	3	57	17	-	4.0	4.6
AB	32	1	6	11	10	4	50	18	-	4.1	4.7
Bt1	33	1	5	12	11	4	37	30	-	4.1	4.6
Bt2	23	1	3	8	8	3	35	42	-	3.8	4.3
C	6	-	-	-	-	-	45	49	-	3.7	4.3

Horizon	$CaCO_3$ eq. (%)	Org. C (%)	Total N (%)	C/N	E.C. (mS/cm)	Sat. H_2O (%)	Cations in Saturation Extract (me/l)			
							Na	K	Ca	Mg
LF	-	39.90	1.95	20	-	-	-	-	-	-
Ae	-	1.39	0.12	12	-	-	-	-	-	-
AB	-	1.24	0.07	18	-	-	-	-	-	-
Bt1	-	1.20	0.11	11	-	-	-	-	-	-
Bt2	-	0.63	0.07	9	-	-	-	-	-	-
C	-	-	-	-	-	-	-	-	-	-

Hori.	TEC (me/100g)	Exchange Cations (me/100g)				Base Sat. (%)	Perm. Charge CEC (me/100g)				Base Sat. (%)
		Na	K	Ca	Mg		Al	Ca	Mg	Total	
LF	79.1	0.1	5.7	45.5	5.4	72	0.0	62.5	12.8	75.3	100
Ae	17.6	0.02	0.3	3.2	0.6	23	4.2	5.0	1.3	10.3	60
AB	17.6	0.02	0.2	3.8	1.0	29	3.8	5.3	1.7	10.8	65
Bt1	22.5	0.04	0.2	3.7	1.1	22	6.4	6.7	2.7	15.8	59
Bt2	27.8	0.1	0.5	3.7	1.6	21	6.7	6.7	3.2	16.6	60
C	27.8	0.1	0.5	5.1	2.3	29	6.1	7.5	3.6	17.2	65

DESCRIPTION OF A PROFILE IN THE LEGEND SOIL GROUP - SITE M78-22

Soil Unit:	LGD1
Location:	SW24-98-17-W4
Classification:	Orthic Gray Luvisol
Landform:	
Genetic Material:	Morainal; fine-clayey
Surface Expression:	Hummocky; gentle slopes
Site Features:	Upper slope position; north aspect; moderately well drained; medium perviousness; moderately stony
Vegetation:	Upland mixed coniferous forest; jack pine, black spruce, aspen, blueberry, lichens

Profile Description:

LF - 2 to 0 cm; dark brown; slightly to moderately decomposed needles, leaves and lichens; plentiful, fine to coarse, horizontal roots; clear, wavy boundary.

Ae - 0 to 8 cm; grayish brown (10YR 5/2 m); silt loam; moderate, fine platy; friable; 10% coarse fragments; few, fine to coarse, horizontal roots; clear, wavy boundary.

Bt1 - 8 to 18 cm; brown (10YR 5/3 m); clay loam; moderate, fine and medium subangular blocky; friable; 10% coarse fragments; very few, fine to coarse, oblique roots; diffuse, smooth boundary.

Bt2 - 18 to 35 cm; yellowish brown (10YR 5/4 m); clay loam; strong, fine and medium subangular blocky; firm; 10% coarse fragments; few, fine to coarse, oblique roots; diffuse, smooth boundary.

BC - 35 to 60 cm; dark gray (10YR 4/1 m); clay; strong, medium subangular blocky; slightly sticky; 10% coarse fragments; very few roots; diffuse, smooth boundary.

C - 60 to 100 cm; very dark gray (10YR 3/1 m); clay loam; moderate, fine subangular blocky; firm; 10% coarse fragments; very few roots.

ANALYSIS OF SOIL AT SITE M78-22

Horizon	Particle Size Distribution (%)									pH	pH
	Sand	VCS	CS	MS	FS	VFS	Silt	Clay	Fine C	CaCl2	H2O
LF	-	-	-	-	-	-	-	-	-	4.4	4.9
Ae	22	1	4	8	7	2	67	11	-	3.9	4.7
Bt1	36	tr	5	13	13	5	37	27	-	4.1	4.8
Bt2	44	1	6	16	16	5	28	28	-	4.1	4.7
BC	23	1	3	8	8	3	33	44	-	4.2	4.6
C	31	1	4	11	11	4	33	36	-	4.4	4.8

Horizon	CaCO3 eq. (%)	Org. C (%)	Total N (%)	C/N	E.C. (mS/ cm)	Sat. H2O (%)	Cations in Saturation Extract (me/l)			
							Na	K	Ca	Mg
LF	-	24.06	0.86	28	-	-	-	-	-	-
Ae	-	0.81	0.05	16	-	-	-	-	-	-
Bt1	-	0.49	0.05	10	-	-	-	-	-	-
Bt2	-	0.29	0.04	7	-	-	-	-	-	-
BC	-	0.47	0.05	9	-	-	-	-	-	-
C	-	0.54	0.06	9	-	-	-	-	-	-

Hori.	TEC (me/ 100g)	Exchange Cations (me/100g)				Base Sat. (%)	Perm. Charge CEC (me/100g)				Base Sat. (%)
		Na	K	Ca	Mg		Al	Ca	Mg	Total	
LF	50.8	0.1	2.2	23.5	2.3	55	-	-	-	-	-
Ae	10.5	0.05	0.2	1.0	0.3	15	-	-	-	-	-
Bt1	11.3	0.1	0.2	3.0	1.4	41	-	-	-	-	-
Bt2	12.7	0.1	0.2	4.5	2.3	56	-	-	-	-	-
BC	23.6	0.1	0.5	10.3	5.9	71	-	-	-	-	-
C	19.2	0.1	0.5	10.7	5.6	88	-	-	-	-	-

DESCRIPTION OF A PROFILE IN THE LEGEND SOIL GROUP - SITE M78-23

Soil Unit:	LGD1
Location:	SW18-100-17-W4
Classification:	Orthic Gray Luvisol (Legend series)
Landform:	
Genetic Material:	Morainal; fine-loamy
Surface Expression:	Hummocky and undulating; gentle slopes
Site Features:	Upper slope position; southwest aspect; moderately well drained; medium perviousness; moderately stony
Vegetation:	Upland mixed coniferous forest; jack pine, black spruce, cowberry, Labrador tea, lichens

Profile Description:

LF - 3 to 0 cm; dark brown; slightly to moderately decomposed.

Ae - 0 to 10 cm; light gray (10YR 7.2/5 m); silt loam; strong, fine platy; very friable; 15% coarse fragments; gradual, wavy boundary.

AB - 10 to 16 cm; pale brown (10YR 6/3 m); clay loam; moderate, fine subangular blocky; 15% coarse fragments; clear, wavy boundary.

Bt1 - 16 to 34 cm; dark brown (10YR 4/3 m); clay loam; strong, medium subangular blocky; firm; 20% coarse fragments; gradual, smooth boundary.

Bt2 - 34 to 52 cm; dark grayish brown (10YR 4/2 m); sandy clay loam; strong, medium subangular blocky; firm; 15% coarse fragments; gradual, smooth boundary.

BC - 52+ cm; very dark grayish brown (10YR 3/2 m); sandy clay loam; weak, medium subangular blocky to massive; firm; 15% coarse fragments.

ANALYSIS OF SOIL AT SITE M78-23

Horizon	Particle Size Distribution (%)									pH	pH
	Sand	VCS	CS	MS	FS	VFS	Silt	Clay	Fine C	CaCl2	H2O
LF	-	-	-	-	-	-	-	-	-	4.0	4.5
Ae	19	tr	3	7	6	2	66	15	-	4.1	4.9
AB	22	1	3	7	8	3	49	29	-	4.8	5.3
Bt1	37	1	5	14	14	3	28	35	-	4.6	5.1
Bt2	45	2	6	16	16	5	27	28	-	4.9	5.4
BC	46	tr	5	15	19	6	27	27	-	5.3	5.8

Horizon	CaCO3 eq. (%)	Org. C (%)	Total N (%)	C/N	E.C. (mS/cm)	Sat. H2O (%)	Cations in Saturation Extract (me/l)			
							Na	K	Ca	Mg
LF	-	33.47	1.09	31	-	-	-	-	-	-
Ae	-	0.97	0.04	24	-	-	-	-	-	-
AB	-	0.36	0.03	12	-	-	-	-	-	-
Bt1	-	0.29	0.03	10	-	-	-	-	-	-
Bt2	-	0.21	0.03	7	-	-	-	-	-	-
BC	-	0.31	0.03	10	-	-	-	-	-	-

Hori.	TEC (me/100g)	Exchange Cations (me/100g)				Base Sat. (%)	Perm. Charge CEC (me/100g)				Base Sat. (%)
		Na	K	Ca	Mg		Al	Ca	Mg	Total	
LF	68.4	1.3	2.9	17.3	2.9	36	-	-	-	-	-
Ae	11.7	0.1	0.2	2.9	0.9	36	-	-	-	-	-
AB	13.9	0.1	0.4	7.4	3.8	86	-	-	-	-	-
Bt1	18.6	0.1	0.4	11.2	4.6	88	-	-	-	-	-
Bt2	15.1	0.1	0.2	10.7	4.4	100	-	-	-	-	-
BC	15.1	0.1	0.2	11.1	4.7	100	-	-	-	-	-

DESCRIPTION OF A PROFILE IN THE LEGEND SOIL GROUP - SITE M78-24

Soil Unit:	LGD1
Location:	SW14-102-17-W4
Classification:	Gleyed Gray Luvisol
Landform:	
Genetic Material:	Morainal; fine-clayey
Surface Expression:	Rolling; gentle slopes
Site Features:	Upper slope position; southeast aspect; imperfectly drained; medium perviousness; slightly stony
Vegetation:	Upland mixed coniferous forest; black spruce, jack pine, Labrador tea, lichens, feathermosses

Profile Description:

LF - 9 to 0 cm; dark brown; slightly to moderately decomposed, clear, wavy boundary.

Aegj - 0 to 5 cm; very dark grayish brown (10YR 3/2 m); silt loam; strong, fine platy; friable; few coarse fragments; clear, wavy boundary.

ABgj - 5 to 11 cm; dark grayish brown (10YR 4/2.5 m); silt loam; strong, fine, mixed platy and subangular blocky; friable; few coarse fragments; diffuse, wavy boundary.

Btgj1 - 11 to 28 cm; yellowish brown (10YR 5/4 m); silty clay; strong, medium subangular blocky; firm; few coarse fragments; diffuse, smooth boundary.

Btgj2 - 28 to 45 cm; dark grayish brown (2.5Y 4/2 m); silty clay loam; strong, fine and medium, subangular blocky; firm; few coarse fragments; diffuse, smooth boundary.

BCgj - 45 to 60 cm; grayish brown (2.5Y 4.5/2 m); silty clay; moderate, medium subangular blocky; firm to sticky; few coarse fragments; diffuse, smooth boundary.

Cgj - 60 to 90 cm; very dark grayish brown (2.5Y 3/2 m); silty clay; massive to weak, coarse subangular blocky; firm to sticky; few coarse fragments.

ANALYSIS OF SOIL AT SITE M78-24

Horizon	Particle Size Distribution (%) Sand	VCS	CS	MS	FS	VFS	Silt	Clay	Fine C	pH CaCl2	pH H2O
LF	-	-	-	-	-	-	-	-	-	3.5	4.1
Aegj	10	-	-	-	-	-	69	21	-	3.4	4.0
ABgj	9	-	-	-	-	-	67	24	-	3.8	4.6
Btgj1	9	-	-	-	-	-	48	43	-	4.0	4.5
Btgj2	17	tr	1	6	7	10	44	39	-	4.1	4.5
BCgj	14	-	1	5	6	2	45	41	-	4.1	4.5
Cgj	9	-	-	-	-	-	43	48	-	4.3	4.6

Horizon	CaCO3 eq. (%)	Org. C (%)	Total N (%)	C/N	E.C. (mS/ cm)	Sat. H2O (%)	Cations in Saturation Extract (me/l) Na	K	Ca	Mg
LF	-	32.51	0.78	42	-	-	-	-	-	-
Aegj	-	2.40	0.11	22	-	-	-	-	-	-
ABgj	-	0.78	0.07	11	-	-	-	-	-	-
Btgj1	-	0.29	0.07	4	-	-	-	-	-	-
Btgj2	-	0.41	0.07	6	-	-	-	-	-	-
BCgj	-	0.50	0.08	6	-	-	-	-	-	-
Cgj	-	0.65	0.08	8	-	-	-	-	-	-

Hori.	TEC (me/ 100g)	Exchange Cations (me/100g) Na	K	Ca	Mg	Base Sat. (%)	Perm. Charge CEC (me/100g) Al	Ca	Mg	Total	Base Sat. (%)
LF	62.5	0.8	2.1	8.1	2.2	21	-	-	-	-	-
Aegj	21.0	0.05	0.4	1.0	0.5	9	-	-	-	-	-
ABgj	16.3	0.1	0.2	1.4	0.8	15	-	-	-	-	-
Btgj1	20.1	0.1	0.5	4.5	2.5	37	-	-	-	-	-
Btgj2	19.1	0.1	0.4	6.3	3.7	55	-	-	-	-	-
BCgj	21.8	0.1	0.5	8.7	4.5	63	-	-	-	-	-
Cgj	26.9	0.1	0.6	12.4	6.2	72	-	-	-	-	-

DESCRIPTION OF A PROFILE IN THE LEGEND SOIL GROUP - SITE H78-34

Soil Unit:	LGD1
Location:	NE8-95-18-W4
Classification:	Orthic Gray Luvisol
Landform:	
Genetic Material:	Morainal; fine-loamy
Surface Expression:	Hummocky (locally undulating); gentle slopes
Site Features:	Upper slope position; north aspect; well-drained; medium perviousness
Vegetation:	Upland aspen forest; aspen

Profile Description:

LF - 4 to 0 cm; dark brown; slightly to moderately decomposed leaves

Ae1 - 0 to 7 cm; brown (10YR 5/3 m); silt; moderate, medium platy; friable; few, very fine to coarse, horizontal and oblique roots; 5 to 10% coarse fragments; gradual, smooth boundary.

Ae2 - 7 to 18 cm; brown (10YR 4.5/3 m); silt loam; strong, medium platy; friable; few, very fine to medium, oblique roots; 5 to 10% coarse fragments; clear, smooth boundary.

Bt - 18 to 37 cm; brown (7.5YR 5/4 m); loam; strong, fine subangular blocky; sticky; few, fine and medium, oblique and vertical roots; 5 to 10% coarse fragments; clear; smooth boundary.

IIBtj - 37 to 57 cm; brown (7.5YR 5/4 m); sandy loam; weak, medium subangular blocky; non sticky; few, fine and medium, vertical roots; 5 to 10% coarse fragments; abrupt, smooth boundary.

IIIBC - 57 to 85 cm; dark grayish brown (10YR 4/2 m); clay loam; strong, medium subangular blocky; sticky; very few, fine and medium, vertical roots; 5 to 10% coarse fragments; gradual, smooth boundary.

IIIC - 85 to 110 cm; very dark grayish brown (10YR 3/2 m); clay loam; massive; sticky; very few, fine to coarse roots; 5 to 10% coarse fragments.

ANALYSIS OF SOIL AT SITE M78-34

Horizon	Particle Size Distribution (%)									pH CaCl2	pH H20
	Sand	VCS	CS	MS	FS	VFS	Silt	Clay	Fine C		
LF	-	-	-	-	-	-	-	-	-	6.5	6.7
Ae1	7	-	-	-	-	-	82	11	-	5.1	5.7
Ae2	10	-	tr	2	5	2	70	20	-	4.6	5.3
Bt	39	tr	3	10	17	8	35	26	-	4.4	4.8
IIBtj	60	tr	5	15	28	11	26	14	-	4.4	4.9
IIIBC	27	tr	3	8	11	4	33	40	-	4.4	4.8
IIIC	36	tr	3	11	15	7	32	32	-	4.5	5.1

Horizon	CaCO3 eq. (%)	Org. C (%)	Total N (%)	C/N	E.C. (mS/cm)	Sat. H20 (%)	Cations in Saturation Extract (me/l)			
							Na	K	Ca	Mg
LF	-	36.72	2.64	14	-	-	-	-	-	-
Ae1	-	1.22	0.11	11	-	-	-	-	-	-
Ae2	-	0.49	0.05	10	-	-	-	-	-	-
Bt	-	0.33	0.05	7	-	-	-	-	-	-
IIBtj	-	0.26	0.03	8	-	-	-	-	-	-
IIIBC	-	-	-	-	-	-	-	-	-	-
IIIC	-	-	-	-	-	-	-	-	-	-

Hori.	TEC (me/100g)	Exchange Cations (me/100g)				Base Sat. (%)	Perm. Charge CEC (me/100g)				Base Sat. (%)
		Na	K	Ca	Mg		Al	Ca	Mg	Total	
LF	98.2	0.1	3.7	86.9	12.3	100	0.6	107.5	23.9	132.0	100
Ae1	12.3	0.02	0.2	6.4	1.0	62	0.1	6.5	1.6	8.2	99
Ae2	11.8	0.03	0.2	5.4	2.4	68	0.4	6.4	0.3	7.1	94
Bt	15.6	0.03	0.3	6.6	3.7	70	0.8	7.0	0.3	8.1	90
IIBtj	11.8	0.04	0.2	4.2	2.5	59	0.8	5.5	0.7	6.6	88
IIIBC	23.9	0.3	0.4	10.3	7.7	78	0.3	13.3	0.7	14.3	98
IIIC	18.6	0.4	0.3	8.8	6.7	87	0.0	10.3	0.5	10.8	100

DESCRIPTION OF A PROFILE IN THE LIVOCK SOIL GROUP - SITE M77-11

Soil Unit:	Sampled in STP1 unit
Location:	SE34-92-8-W4
Classification:	Orthic Gray Luvisol
Landform:	
Genetic Material:	Glaciofluvial sandy veneer overlying fine-loamy morainal material
Surface Expression:	Undulating; very gentle slopes
Site Features:	Upper slope position; east aspect; well drained; high perviousness; non-stony
Vegetation:	Upland mixed forest; jack pine, aspen

Profile Description:

LFH	-	4 to 0 cm; slightly to moderately decomposed leaves and needles; plentiful, very fine to medium, horizontal roots; abrupt, wavy boundary.
Ae	-	0 to 6 cm; light gray (10YR 6.5/1 d; 10YR 4/2 m); fine sandy loam; weak, medium platy; very friable; few, very fine to coarse, horizontal roots; clear, wavy boundary.
AB1	-	6 to 15 cm; light yellowish brown (10YR 6/4 d; 10YR 4/4 m); loamy fine sand; moderate, medium platy; very friable; few, very fine to coarse, horizontal roots; gradual, smooth boundary.
AB2	-	15 to 27 cm; light yellowish brown (10YR 6/4 d; 10YR 4/4 m); fine sand; weak, medium subangular blocky; friable; very few, very fine to medium, oblique roots; abrupt, smooth boundary.
IIBt	-	27 to 60 cm; yellowish brown (10YR 5/4 d; 10YR 3.5/4 m); sandy clay loam; weak, medium subangular blocky; firm; very few, very fine to medium, oblique roots; gradual, smooth boundary.
IICk1	-	60 to 100 cm; brown (10YR 5/3 d; 10YR 3/3 m); loam; massive; firm; very few, very fine to medium, oblique roots; gradual, smooth boundary.
IICk2	-	100 to 120 cm; brown (10YR 5/3 d; 10YR 3/3 m); loam; massive; firm; very few, very fine and fine, oblique roots.

ANALYSIS OF SOIL AT SITE M77-11

Horizon	Particle Size Distribution (%) Sand	VCS	CS	MS	FS	VFS	Silt	Clay	Fine C	pH CaCl2	pH H2O
LFH	-	-	-	-	-	-	-	-	-	4.6	5.1
Ae	66	1	5	21	30	9	34	-	-	4.0	4.8
AB1	83	1	3	17	51	11	14	3	2	4.6	5.4
AB2	86	tr	3	16	57	10	12	2	2	4.5	5.2
IIBt	49	tr	4	16	21	7	27	24	14	5.3	5.6
IICk1	50	tr	4	15	22	8	32	18	9	7.0	7.2
IICk2	48	1	4	14	21	8	32	20	9	7.3	7.6

Horizon	CaCO3 eq. (%)	Org. C (%)	Total N (%)	C/N	E.C. (mS/cm)	Sat. H2O (%)	Cations in Saturation Extract (me/l) Na	K	Ca	Mg
LFH	-	31.67	0.88	36	-	-	-	-	-	-
Ae	-	0.62	0.02	31	-	-	-	-	-	-
AB1	-	0.12	0.01	12	-	-	-	-	-	-
AB2	-	0.14	0.01	14	-	-	-	-	-	-
IIBt	-	0.41	0.02	21	-	-	-	-	-	-
IICk1	9.7	-	-	-	-	-	-	-	-	-
IICk2	10.5	-	-	-	-	-	-	-	-	-

Hori.	TEC (me/100g)	Exchange Cations (me/100g) Na	K	Ca	Mg	Base Sat. (%)	Perm. Charge CEC (me/100g) Al	Ca	Mg	Total	Base Sat. (%)
LFH	52.6	0.8	3.7	25.5	3.6	64	0.0	30.0	3.7	33.7	100
Ae	2.[illegible]	0.02	0.1	0.9	0.2	44	0.7	1.2	0.3	2.2	68
AB2	2.0	0.04	0.1	0.6	0.2	45	0.6	0.7	0.3	1.6	93
AB2	1.9	0.0	0.05	0.6	0.2	44	0.4	0.4	0.2	1.0	60
IIBt	9.2	0.05	0.3	7.4	2.4	100	0.1	7.4	3.5	11.0	99
IICk1	6.9	0.1	0.2	35.0	2.3	100	-	-	-	-	-
IICk2	-	-	-	-	-	-	-	-	-	-	-

DESCRIPTION OF A PROFILE IN THE LIVOCK SOIL GROUP - SITE M78-3

Soil Unit: LVK1

Location: SE33-86-12-W4

Classification: Orthic Gray Luvisol (Livock series)

Landform:

  Genetic Material: Mixed glaciolacustrine veneer overlying till; fine-silty over fine-loamy

  Surface Expression: Undulating; nearly level

Site Features: Midslope position; west aspect; moderately well drained; medium perviousness; moderately stony

Vegetation: Upland mixed coniferous forest; jack pine, white spruce, aspen, blueberry, feathermosses

Profile Description:

LF - 4 to 0 cm; dark brown; leaves and mosses, slightly decomposed in L layer and permeated by fungi in F layer; plentiful, fine and medium, horizontal roots; clear, wavy boundary.

Ae - 0 to 8 cm; light gray (10YR 7/2 d), dark grayish brown (10YR 4/2 m); silt loam; moderate, fine platy, very friable; 10% coarse fragments; clear, wavy boundary.

AB - 8 to 13 cm; light gray (2.5Y 6/2 d), olive brown (2.5Y 4/4 m); silt loam; moderate, medium platy breaking to moderate, fine subangular blocky; friable; 10% coarse fragments; gradual, wavy boundary.

Bt1 - 13 to 29 cm; light gray (10YR 7/2 d), dark yellowish brown (10YR 4/4 m); silty clay loam; strong, medium subangular blocky; sticky; 10% coarse fragments; gradual, wavy boundary.

Bt2 - 29 to 55 cm; pale brown (10YR 6/3 d), brown (10YR 4/3 m); clay loam; moderate, medium subangular blocky; sticky; 5% coarse fragments; gradual, smooth boundary.

IIBC - 55 to 100 cm; light yellowish brown (2.5Y 6/3 d), dark grayish brown (2.5Y 4/2 m); loam; weak, fine subangular blocky; sticky; 10% coarse fragments; gradual, smooth boundary.

IIC - 100 to 120+ cm; light yellowish brown (2.5Y 6/3 d), dark grayish brown (2.5Y 4/2 m); loam; massive; sticky; 10% coarse fragments.

ANALYSIS OF SOIL AT SITE M78-3

Horizon	Particle Size Distribution (%) Sand	VCS	CS	MS	FS	VFS	Silt	Clay	Fine C	pH $CaCl_2$	pH H_2O
LF	-	-	-	-	-	-	-	-	-	4.3	4.8
Ae	20	tr	2	4	7	7	72	8	-	4.1	4.8
AB	12	-	1	2	4	5	71	17	-	4.3	5.2
Bt1	14	-	1	4	6	3	56	30	-	4.3	4.9
Bt2	23	-	1	5	10	7	45	32	-	4.4	5.0
IIBC	31	-	2	6	14	9	45	24	-	6.2	6.6
IIC	31	tr	2	6	14	10	46	23	-	7.3	7.6

Horizon	$CaCO_3$ eq. (%)	Org. C (%)	Total N (%)	C/N	E.C. (mS/ cm)	Sat. H_2O (%)	Cations in Saturation Extract (me/l) Na	K	Ca	Mg
LF	-	24.59	0.97	25	-	-	-	-	-	-
Ae	-	1.15	0.07	16	-	-	-	-	-	-
AB	-	0.42	0.03	14	-	-	-	-	-	-
Bt1	-	0.48	0.04	12	-	-	-	-	-	-
Bt2	-	0.50	0.03	17	-	-	-	-	-	-
IIBC	-	0.78	0.03	26	-	-	-	-	-	-
IIC	4.5	-	-	-	-	-	-	-	-	-

Hori.	TEC (me/ 100g)	Exchange Cations (me/100g) Na	K	Ca	Mg	Base Sat. (%)	Perm. Charge CEC (me/100g) Al	Ca	Mg	Total	Base Sat. (%)
LF	64.5	0.1	1.6	18.1	3.4	36	-	-	-	-	-
Ae	11.3	0.03	0.2	1.8	0.7	24	-	-	-	-	-
AB	10.0	0.02	0.2	1.7	0.8	27	-	-	-	-	-
Bt1	18.9	0.06	0.2	3.5	2.4	33	-	-	-	-	-
Bt2	20.4	0.05	0.2	5.2	3.5	44	-	-	-	-	-
IIBC	18.9	0.1	0.2	6.7	4.0	58	-	-	-	-	-
IIC	10.2	-	-	-	-	-	-	-	-	-	-

DESCRIPTION OF A PROFILE IN THE LIVOCK SOIL GROUP - SITE M78-38

Soil Unit:	LVK1
Location:	NW2-90-14-W4
Classification:	Orthic Gray Luvisol
Landform:	
Genetic Material:	Mixed glaciolacustrine veneer overlying fine-loamy morainal material
Surface Expression:	Undulating; nearly level and very gentle slopes
Site Features:	Upper slope position; southeast aspect; moderately well-drained; medium perviousness
Vegetation:	Upland mixed forest; aspen, white birch, jack pine, white spruce, blueberry, Labrador tea, bunchberry, club mosses, lichens

Profile Description:

LF	- 8 to 0 cm; dark brown, slightly to moderately decomposed leaves and needles.
Ae1	- 0 to 6 cm; gray (10YR 5/1 m); silt; strong, fine platy; very friable; less than 5% coarse fragments; clear, wavy boundary.
Ae2	- 6 to 20 cm; brown to yellowish brown (10YR 5/3.5 m); silt; strong, coarse platy; friable; less than 5% coarse fragments; clear, wavy boundary.
Bt	- 20 to 44 cm; brown (7.5YR 4.5/4 m); heavy clay, strong, medium subangular blocky; sticky; less than 10% coarse fragments; clear, smooth boundary.
IIBCk	- 44 to 70 cm; dark brown (10YR 3/3 m); loam; moderate, fine subangular blocky; sticky; less than 10% coarse fragments; gradual, smooth boundary.
IICk	- 70 to 100 cm; dark grayish brown (2.5Y 4/2 m); loam; massive; sticky; less than 10% coarse fragments.

ANALYSIS OF SOIL AT SITE M78-38

Horizon	Particle Size Distribution (%)									pH	pH
	Sand	VCS	CS	MS	FS	VFS	Silt	Clay	Fine C	CaCl2	H2O
LF	-	-	-	-	-	-	-	-	-	5.1	5.4
Ae1	15	-	1	3	4	7	83	2	-	4.0	4.5
Ae2	9	-	-	-	-	-	80	11	-	4.4	5.1
Bt	9	-	-	-	-	-	30	61	-	4.8	5.1
IIBC	38	-	2	8	16	12	34	28	-	6.3	6.6
IICK	45	1	5	12	17	10	35	20	-	7.5	7.9

Horizon	CaCO3 eq. (%)	Org. C (%)	Total N (%)	C/N	E.C. (mS/cm)	Sat. H2O (%)	Cations in Saturation Extract (me/l)			
							Na	K	Ca	Mg
LF	-	39.58	1.98	20	-	-	-	-	-	-
Ae1	-	0.93	0.08	12	-	-	-	-	-	-
Ae2	-	0.22	0.03	7	-	-	-	-	-	-
Bt	-	0.58	0.05	12	-	-	-	-	-	-
IIBC	0.1	-	-	-	-	-	-	-	-	-
IICK	3.3	-	-	-	-	-	-	-	-	-

Hori.	TEC (me/100g)	Exchange Cations (me/100g)				Base Sat. (%)	Perm. Charge CEC (me/100g)				Base Sat. (%)
		Na	K	Ca	Mg		Al	Ca	Mg	Total	
LF	80.9	0.3	3.2	34.8	7.9	46	-	-	-	-	-
Ae1	6.8	0.01	0.2	1.5	0.3	27	-	-	-	-	-
Ae2	6.5	0.02	0.1	2.0	0.9	46	-	-	-	-	-
Bt	24.8	0.1	0.5	13.4	9.5	95	-	-	-	-	-
IIBC	18.6	0.1	0.2	12.2	6.9	100	-	-	-	-	-
IICK	13.1	-	-	-	-	-	-	-	-	-	-

DESCRIPTION OF A PROFILE IN THE LIVOCK SOIL GROUP - SITE M78-102

Soil Unit:	LVK1
Location:	SE9-89-16-W4
Classification:	Gleyed Gray Luvisol
Landform:	
Genetic Material:	Mixed glaciolacustrine overlying morainal; fine-clayey
Surface Expression:	Undulating; very gentle slopes
Site Features:	Upper slope position; northwest aspect; imperfectly drained; medium perviousness
Vegetation:	Upland mixed coniferous forest; jack pine, Labrador tea, rose, bunchberry

Profile Description:

LF - 2 to 0 cm; dark brown and black; slightly decomposed leaves, needles, twigs; charred appearance on many particles.

Aegj - 0 to 6 cm; very pale brown (10YR 7/3 m); silt loam; strong, medium platy; slightly sticky; less than 5% coarse fragments; clear, wavy boundary.

Btgj1 - 6 to 15 cm; reddish brown (5YR 5/3 m); clay loam; strong, medium, subangular blocky; sticky; 5 to 10% coarse fragments; gradual, smooth boundary.

Btgj2 - 15 to 35 cm; dark brown (10YR 4/3 m); clay; strong, medium, subangular blocky; very sticky; less than 5% coarse fragments; clear, smooth boundary.

Btgj3 - 35 to 50 cm; dark yellowish brown (10YR 4/4 m); clay loam; strong, medium, subangular blocky; less than 5% coarse fragments; gradual, smooth boundary.

Cgj - 50 to 70 cm; dark grayish brown (10YR 4/2 m); loam; massive; sticky; 5 to 10% coarse fragments.

ANALYSIS OF SOIL AT SITE M78-102

Horizon	Particle Size Distribution (%)									pH	pH
	Sand	VCS	CS	MS	FS	VFS	Silt	Clay	Fine C	CaCl2	H2O
LF	-	-	-	-	-	-	-	-	-	4.1	4.5
Aegj	15	-	1	3	6	5	71	14	-	4.0	4.8
Btgj1	36	-	1	9	18	8	33	31	-	4.9	5.0
Btgj2	14	tr	1	4	6	3	40	46	-	4.7	5.1
Btgj3	24	-	1	4	10	9	37	39	-	4.8	5.1
Ckgj	50	1	4	11	20	15	33	17	-	7.1	7.6

Horizon	CaCO3 eq. (%)	Org. C (%)	Total N (%)	C/N	E.C. (mS/cm)	Sat. H2O (%)	Cations in Saturation Extract (me/l)			
							Na	K	Ca	Mg
LF	-	37.72	1.08	35	-	-	-	-	-	-
Aegj	-	0.74	0.04	19	-	-	-	-	-	-
Btgj1	-	0.39	0.03	13	-	-	-	-	-	-
Btgj2	-	0.96	0.04	24	-	-	-	-	-	-
Btgj3	-	0.60	0.04	15	-	-	-	-	-	-
Ckgj	2.1	-	-	-	-	-	-	-	-	-

Hori.	TEC (me/100g)	Exchange Cations (me/100g)				Base Sat. (%)	Perm. Charge CEC (me/100g)				Base Sat. (%)
		Na	K	Ca	Mg		Al	Ca	Mg	Total	
LF	-	-	-	-	-	-	1.1	35.0	10.3	46.4	98
Aegj	8.1	0.02	0.2	1.4	0.4	16	2.1	2.0	1.1	5.2	60
Btgj1	11.9	0.04	0.2	6.9	2.6	53	0.3	10.5	6.1	16.9	98
Btgj2	19.2	0.1	0.4	12.6	4.7	60	0.0	19.4	8.3	27.7	100
Btgj3	17.0	0.1	0.3	13.0	4.4	68	0.1	12.1	6.6	18.8	99
Ckgj	-	-	-	-	-	-	0.2	13.8	3.8	17.8	99

DESCRIPTION OF A PROFILE IN THE MAMAWI SOIL GROUP - SITE M78-28

Soil Unit: MMW2
Location: NE24-109-8-W4
Classification: Rego Gleysol
Landform:
  Genetic Material: Fluvial (delta); fine-clayey
  Surface Expression: Depressional to level
Site Features: Level site; very poorly drained; medium perviousness; non-stony
Vegetation: Fen communities; sedges, cattails

Profile Description:

Cg - 0 to 30 cm; dark gray (10YR 4/1 d), black (10YR 2/1 m); slightly to moderately decomposed sedges mixed with mineral material; abundant, very fine and fine roots; clear, smooth boundary.

Ckg - 30 to 100+ cm; grayish brown (2.5Y 5/2 d), very dark grayish brown (2.5Y 3/2 m); silty clay; massive; very sticky; abundant, very fine and fine roots.

ANALYSIS OF SOIL AT SITE M78-28

Horizon	Particle Size Distribution (%)									pH	pH
	Sand	VCS	CS	MS	FS	VFS	Silt	Clay	Fine C	CaCl2	H2O
Cg	-	-	-	-	-	-	-	-	-	6.7	7.0
Ckg	-	-	-	-	-	-	51	49	-	7.2	7.7

Horizon	CaCO3 eq. (%)	Org. C (%)	Total N (%)	C/N	E.C. (mS/cm)	Sat. H2O (%)	Cations in Saturation Extract (me/l)			
							Na	K	Ca	Mg
Cg	-	12.30	0.73	17	-	-	-	-	-	-
Ckg	5.2	5.16	0.30	15	-	-	-	-	-	-

Hori.	TEC (me/100g)	Exchange Cations (me/100g)				Base Sat. (%)	Perm. Charge CEC (me/100g)				Base Sat. (%)
		Na	K	Ca	Mg		Al	Ca	Mg	Total	
Cg	62.3	1.1	3.2	48.6	16.6	100	-	-	-	-	-
Ckg	31.6	-	-	-	-	-	-	-	-	-	-

DESCRIPTION OF A PROFILE IN THE McMURRAY SOIL GROUP - SITE M79-7

Soil Unit: MMY1

Location: NE24-91-10-W4

Classification: Gleyed Cumulic Regosol

Landform:

Genetic Material: Fluvial (alluvial); coarse-loamy

Surface Expression: Level

Site Features: Imperfectly drained; medium to high perviousness; water table at 1.2 m

Vegetation: Bottomland and riparian forest; white spruce, alder, rose, horsetail

Profile Description:

LF - 8 to 0 cm; dark brown; slightly to moderately decomposed leaf litter; clear, wavy boundary.

Aegj - 0 to 8 cm; very dark grayish brown (10YR 3/2 m); fine sand to fine loamy sand; single grain; very friable; clear, wavy boundary.

Agjb1 - 8 to 15 cm; dark grayish brown (10YR 3.5/2 m); loam; very weak, medium pseudoplaty; very friable; contains dark organic layers and rusty mottles; clear, wavy boundary.

Cgj1 - 15 to 24 cm; dark grayish brown (10YR 4/2 m); fine sandy loam; single grain; very friable; clear, wavy boundary.

Agjb2 - 24 to 33 cm; very dark grayish brown (10YR 3/2 m); common, medium, distinct, dark reddish brown (5YR 3/4 m) mottles; loam; weak, medium pseudoplaty; very friable; clear; wavy boundary.

Cgj2 - 33 to 34 cm; lighter colored than layer above or below.

Agjb3 - 34 to 42 cm; very dark grayish brown (10YR 3/2 m); few, medium distinct, dark reddish brown (5YR 3/4 m) mottles; loam; single grain to amorphous; very friable; clear, wavy boundary.

Cgj3 - 42 to 59 cm; very dark grayish brown (10YR 3/2 m); yellowish and reddish brown mottles; loam; single grain to amorphous, very friable; clear, wavy boundary.

Cgj4 - 59 to 110 cm; dark brown (10YR 3/2.5 m); yellowish and reddish brown mottles; fine sandy loam; amorphous, very friable; contains some wood fragments; clear, wavy boundary.

Cg - 110 to 130 cm; loam; massive; sticky; contains wood fragments.

ANALYSIS OF SOIL AT SITE M79-7

Horizon	Particle Size Distribution (%) Sand	VCS	CS	MS	FS	VFS	Silt	Clay	Fine C	pH CaCl2	pH H2O
LF	-	-	-	-	-	-	-	-	-	4.7	5.1
Aegj	-	-	-	-	-	-	-	-	-	-	-
Agjb1	34	-	-	1	14	19	50	16	-	5.8	6.1
Cgj1	69	-	-	2	41	22	21	10	-	6.2	6.6
Agjb2	44	-	-	-	22	22	39	17	-	6.7	6.8
Cgj2	-	-	-	-	-	-	-	-	-	-	-
Agjb3	47	-	-	1	20	26	40	13	-	6.9	7.0
Cgj3	45	-	-	1	20	24	42	13	-	7.0	7.3
Cgj4	54	-	-	1	19	34	32	14	-	7.1	7.2
Cg	43	-	1	2	13	27	40	17	-	6.5	6.6

Horizon	CaCO3 eq. (%)	Org. C (%)	Total N (%)	C/N	E.C. (mS/cm)	Sat. H2O (%)	Cations in Saturation Extract (me/l) Na	K	Ca	Mg
LF	-	35.62	2.07	17	-	-	-	-	-	-
Aegj	-	-	-	-	-	-	-	-	-	-
Agjb1	-	4.27	1.47	3	-	-	-	-	-	-
Cgj1	-	2.14	0.39	5	-	-	-	-	-	-
Agjb2	-	2.34	1.14	2	-	-	-	-	-	-
Cgj2	-	-	-	-	-	-	-	-	-	-
Agjb3	0.3	3.21	0.81	4	-	-	-	-	-	-
Cgj3	0.1	2.05	0.55	4	-	-	-	-	-	-
Cgj4	0.2	3.45	0.93	4	-	-	-	-	-	-
Cg	-	3.84	0.45	8	-	-	-	-	-	-

Hori.	TEC (me/100g)	Exchange Cations (me/100g) Na	K	Ca	Mg	Base Sat. (%)	Perm. Charge CEC (me/100g) Al	Ca	Mg	Total	Base Sat. (%)
LF	121.2	0.1	2.2	58.9	14.9	63	-	-	-	-	-
Aegj	-	-	-	-	-	-	-	-	-	-	-
Agjb1	20.3	0.1	0.1	12.7	6.3	95	-	-	-	-	-
Cgj1	8.9	0.1	0.1	5.5	2.7	94	-	-	-	-	-
Agjb2	18.6	0.5	0.1	13.4	7.1	100	-	-	-	-	-
Cgj2	-	-	-	-	-	-	-	-	-	-	-
Agjb3	13.3	0.4	0.1	9.7	4.3	100	-	-	-	-	-
Cgj3	9.2	0.3	0.1	6.7	3.1	100	-	-	-	-	-
Cgj4	17.1	0.2	0.1	12.7	4.6	100	-	-	-	-	-
Cg	18.6	0.1	0.1	13.9	6.3	100	-	-	-	-	-

DESCRIPTION OF A PROFILE IN THE MIKKWA SOIL GROUP - SITE M78-74

Soil Unit: Sampled in KNZ1 unit

Location: NE27-92-7-W4

Classification: Humic Organic Cryosol

Landform:

Genetic Material: Bog; sphagnum and forest peat

Surface Expression: Level bog with small bog plateaus

Site Features: Sample site at top of 30 m x 20 m x 2 m high mound with collapsing edge.

Vegetation: Wetland black spruce bog forest; black spruce, feathermosses, lichens, Rubus spp, Labrador tea, cowberry

Profile Description:

Of - 0 to 20 cm; brown and dark brown; forest peat; slightly decomposed; mainly fibres; few roots; few wood fragments.

Oh - 20 to 50 cm; black; humic peat; moderately to highly decomposed; few fibres; no roots; few wood fragments.

Ohz - 50 to 105 cm; black; humic peat; highly decomposed; almost no fibres; no roots; few wood fragments.

IIAhgz - 105 to 115 cm; black; muck layer; no fibre, roots or wood.

IICgz - 115+ cm; gray; sandy loam; massive; sticky.

ANALYSIS OF SOIL AT SITE M78-74

Horizon	Particle Size Distribution (%)			Fiber Content (%)		Water Capacity (%w/w)	Volume Wt. (g/cm3)	Ice (%w/v)
	Sand	Silt	Clay	Unrubbed	Rubbed			
Of	-	-	-	100	60	868	0.049	-
Oh	-	-	-	23	3	381	0.254	-
Ohz	-	-	-	21	5	259	0.319	-
IIAhgz	-	-	-	-	-	-	-	-
IICgz	-	-	-	-	-	-	-	-

Horizon	pH of Soil H2O	pH CaCl2	pH H2O	CaCO3 eq. (%)	Org. C. (%)	Total N (%)	C/N
Of	-	3.2	-	-	54.86	1.17	47
Oh	-	5.5	-	-	51.20	3.46	15
Ohz	-	5.4	-	-	47.47	2.47	19
IIAhgz	-	5.5	7.4	-	11.03	0.49	22
IICgz	-	6.7	6.9	-	-	-	-

Horizon	TEC (me/100g)	Exchange Cations (me/100g)				Base Sat. (%)	Ash (%)	Pyrophos. Index
		Na	K	Ca	Mg			
Of	121.1	0.1	3.0	17.2	5.0	19	6.4	9
Oh	160.5	0.3	0.2	124.2	13.6	78	20.6	70
Ohz	159.1	2.2	0.1	121.2	11.8	76	32.8	95
IIAhgz	57.6	0.6	0.1	39.7	6.4	73	78.0	40
IICgz	11.6	0.4	0.1	11.7	3.0	118	-	-

DESCRIPTION OF A PROFILE IN THE MIKKWA SOIL GROUP - SITE M78-110

Soil Unit: MKW1

Location: NE23-89-17-W4

Classification: Mesic Organic Cryosol

Landform:

- Genetic Material: Bog; mesic bog and forest peat
- Surface Expression: Plateau with collapse scars; strongly mounded microrelief.

Site Features: Frozen peat at 50 to 80 cm from surface; thickness of frozen layer about 1 to 1.5 m; plateau 1 to 2 m above collapse scar surface

Vegetation: Wetland black spruce bog forest; black spruce, Labrador tea, sphagnum mosses

Profile Description:

Of - 0 to 15 cm; dark brown; sphagnum-forest peat; slightly decomposed; original plant structure; many roots; many wood fragments.

Om1 - 15 to 48 cm; black; sphagnum-forest peat; slightly to moderately decomposed; fine and medium fibres; few roots; few wood fragments.

Om2 - 48 to 83 cm; dark brown; forest-sphagnum peat; slightly to moderately decomposed; fine, platy structure; fine fibres; no roots; no wood fragments.

Omz1 - 83 to 110 cm; brown; sphagnum-fen peat; moderately decomposed.

Omz2 - 110 to 160+ cm.

ANALYSIS OF SOIL AT SITE M78-110

Horizon	Particle Size Distribution (%)			Fiber Content (%)		Water Capacity (%w/w)	Volume Wt. (g/cm3)	Ice (%w/v)
	Sand	Silt	Clay	Unrubbed	Rubbed			
Of	-	-	-	88	43	598	0.099	-
Oml	-	-	-	78	25	978	0.086	-
Om2	-	-	-	80	28	978	0.087	-
Omz2	-	-	-	71	32	1137	0.076	-
Omz2	-	-	-	-	-	-	-	-

Horizon	pH of Soil H2O	pH CaCl2	pH H2O	CaCO3 eq. (%)	Org. C. (%)	Total N (%)	C/N
Of	6.1	4.1	-	-	51.49	1.87	28
Oml	-	6.0	-	-	49.00	2.54	19
Om2	6.1	5.5	-	-	55.45	2.67	21
Omz1	-	5.4	-	-	46.50	2.86	16
Omz2	-	-	-	-	-	-	-

Horizon	TEC (me/ 100g)	Exchange Cations (me/100g)				Base Sat. (%)	Ash (%)	Pyrophos. Index
		Na	K	Ca	Mg			
Of	189.5	0.2	0.9	79.7	21.4	49	8.3	19
Oml	212.1	0.2	0.3	176.9	40.1	92	14.8	5
Om2	160.3	0.2	0.03	114.5	33.3	83	4.6	6
Omz1	156.6	0.8	0.2	52.6	25.5	45	7.8	6
Omz2	-	-	-	-	-	-	-	-

DESCRIPTION OF A PROFILE IN THE MIKKWA SOIL GROUP - SITE M78-113

Soil Unit: MKW1

Location: SW11-89-17-W4

Classification: Fibric Organic Cryosol

Landform:

- Genetic Material: Bog; fibric sphagnum peat.
- Surface Expression: Plateau; strongly mounded microrelief

Site Features: Generally about 60 cm to frozen layer; frozen layer about 2.4 m thick; no ice between 1 to 2 m high hummocks

Vegetation: Burn area; Labrador tea, cowberry, Rubus spp., lichens, sphagnum mosses between mounds

Profile Description:

Of1 - 0 to 30 cm; very pale brown; sphagnum peat; non-decomposed; fine and medium fibres; original plant structure; few roots; few wood fragments.

Of2 - 30 to 62 cm; pale brown and black; sphagnum peat; stratified with charcoal in some strata; non to slightly decomposed; fine and medium fibres; no roots; few wood fragments.

Ofz1 - 62 to 130 cm; dark brown; sphagnum peat; non to slightly decomposed; stratified, with charcoal fragments in some strata; few wood fragments.

Ofz2 - 130 to 160 cm; dark brown; sphagnum peat; non to slightly decomposed; some stratification with charcoal fragments; few wood fragments.

Ofz3 - 160 to 215 cm; pale brown; sphagnum peat; slightly decomposed; fine fibres.

Omz - 215 to 275 cm; dark brown; sphagnum-forest peat; moderately decomposed; fine fibres.

Om - 275 to 500+ cm; not sampled.

ANALYSIS OF SOIL AT SITE M78-113

Horizon	Particle Size Distribution (%) Sand	Silt	Clay	Fiber Content (%) Unrubbed	Rubbed	Water Capacity (%w/w)	Volume Wt. (g/cm3)	Ice (%w/v)
Of1	-	-	-	98	76	1820	0.031	-
Of2	-	-	-	97	75	1575	0.061	-
Ofz1	-	-	-	98	79	1777	0.051	72
Ofz2	-	-	-	87	70	1711	0.051	77
Ofz3	-	-	-	77	63	-	-	80
Omz	-	-	-	56	29	-	-	71
Om	-	-	-	-	-	-	-	-

Horizon	pH of Soil H20	pH CaCl2	pH H20	CaC03 eq. (%)	Org. C. (%)	Total N (%)	C/N
Of1	4.3	2.9	-	-	47.19	0.68	69
Of2	3.9	2.8	-	-	52.20	0.68	77
Ofz1	-	3.0	-	-	63.86	0.64	99
Ofz2	-	3.3	-	-	46.40	0.68	68
Ofz3	-	-	-	-	45.29	0.55	83
Omz	-	-	-	-	49.34	1.51	33
Om	-	-	-	-	-	-	-

Horizon	TEC (me/ 100g)	Exchange Cations (me/100g) Na	K	Ca	Mg	Base Sat. (%)	Ash (%)	Pyrophos. Index
Of1	153.6	0.1	0.9	17.1	1.1	11	0.0	5
Of2	154.4	0.4	0.2	14.6	1.1	10	2.5	15
Ofz1	153.9	0.9	0.1	22.8	1.1	15	2.9	14
Ofz2	160.5	1.1	0.1	38.0	1.1	23	6.6	11
Ofz3	187.2	2.3	0.2	71.9	6.8	26	9.0	5
Omz	184.8	0.6	0.1	111.0	10.2	40	11.6	8
Om	-	-	-	-	-	-	-	-

DESCRIPTION OF A PROFILE IN THE MIKKWA SOIL GROUP - SITE M78-118

Soil Unit: MKW1

Location: NW15-83-17-W4

Classification: Fibric Organic Cryosol

Landform:

  Genetic Material: Bog; sphagnum peat

  Surface Expression: Plateau; strongly mounded microrelief

Site Features: Sampled to 90 cm; thickness of peat and frozen layer probably somewhat greater

Vegetation: Wetland black spruce bog forest; black spruce, Labrador tea, cowberry, sphagnum mosses, feathermosses, lichens

Profile Description:

Of1 - 0 to 25 cm; dark brown; sphagnum peat; fine to coarse fibres; original plant structure; few roots; few wood fragments.

Of2 - 25 to 52 cm; dark brown; sphagnum peat; fine and medium fibres; few roots; few wood fragments.

Ofz - 52 to 90+ cm; dark brown; sphagnum peat; fine and medium fibres; few roots; few wood fragments.

ANALYSIS OF SOIL AT SITE M78-118

Horizon	Particle Size Distribution (%)			Fiber Content (%)		Water Capacity (%w/w)	Volume Wt. (g/cm3)	Ice (%w/v)
	Sand	Silt	Clay	Unrubbed	Rubbed			
Of1	-	-	-	84	55	946	0.105	-
Of2	-	-	-	82	43	820	0.109	-
Ofz	-	-	-	87	53	1162	0.078	-

Horizon	pH of Soil H2O	pH CaCl2	pH H2O	CaCO3 eq. (%)	Org. C. (%)	Total N (%)	C/N
Of1	4.2	2.8	-	-	56.62	1.15	49
Of2	4.6	3.3	-	-	54.94	2.25	24
Ofz	-	4.2	-	-	50.94	2.42	21

Horizon	TEC (me/ 100g)	Exchange Cations (me/100g)				Base Sat. (%)	Ash (%)	Pyrophos. Index
		Na	K	Ca	Mg			
Of1	185.7	0.0	0.8	21.7	2.0	12	4.2	25
Of2	203.8	0.03	0.2	53.8	3.1	25	7.3	15
Ofz	154.9	1.1	0.1	87.5	5.1	54	6.8	5

DESCRIPTION OF A PROFILE IN THE MIKKWA SOIL GROUP - SITE M78-129

Soil Unit: MKW1

Location: NW7-99-17-W4

Classification: Fibric Organic Cryosol

Landform:

- Genetic Material: Bog; sphagnum peat
- Surface Expression: Plateau, on gentle slopes

Site Features: Peat deposit penetrated to only 80 cm; thickness appeared to be about 2 m in exposure along creek

Vegetation: Wetland black spruce bog forest; black spruce (sparse), Labrador tea, sphagnum mosses

Profile Description:

Of - 0 to 50 cm; pale brown; sphagnum peat; non to slightly decomposed; original plant structure; few roots; few wood fragments.

Ofz - 50 to 80+ cm; pale brown; sphagnum peat; non to slightly decomposed; few roots; few wood fragments.

ANALYSIS OF SOIL AT SITE M78-129

Horizon	Particle Size Distribution (%)			Fiber Content (%)		Water Capacity (%w/w)	Volume Wt. (g/cm3)	Ice (%w/v)
	Sand	Silt	Clay	Unrubbed	Rubbed			
Of	-	-	-	100	100	1916	0.039	-
Ofz	-	-	-	77	69	1355	0.062	-

Horizon	pH of Soil H2O	pH CaCl2	pH H2O	CaCO3 eq. (%)	Org. C. (%)	Total N (%)	C/N
Of	4.5	2.8	-	-	54.59	0.77	71
Ofz	3.8	3.0	-	-	51.68	0.58	89

Horizon	TEC (me/ 100g)	Exchange Cations (me/100g)				Base Sat. (%)	Ash (%)	Pyrophos. Index
		Na	K	Ca	Mg			
Of	151.1	0.0	0.6	9.4	0.5	6	5.0	12
Ofz	152.1	0.1	0.4	22.2	2.2	15	1.8	12

DESCRIPTION OF A PROFILE IN THE MIKKWA SOIL GROUP - SITE M79-9

Soil Unit:	MKW2
Location:	SE28-99-13-W4
Classification:	Mesic Organic Cryosol
Landform:	
Genetic Material:	Bog; sphagnum and forest peat
Surface Expression:	Plateau; almost level to very gentle sloping.
Vegetation:	Wetland black spruce bog forest; Burn area; black spruce regenerating with Labrador tea, bog birch, lichens, patches of sphagnum and other mosses, willow, cowberry, sedges

Profile Description:

Of - 0 to 12 cm; pale brown; sphagnum peat; slightly to non-decomposed; original plant structure; spongy.

Om - 12 to 43 cm; dark brown and black; forest peat; moderately decomposed.

Omz - 43 to 110 cm; black; forest peat; moderately to well decomposed; high ice content.

IICgz - 110 to 150 cm; gray; silt loam; massive; large lenses of ice.

ANALYSIS OF SOIL AT SITE M79-9

Horizon	Particle Size Distribution (%)			Fiber Content (%)		Water Capacity (%w/w)	Volume Wt. (g/cm3)	Ice (%w/v)
	Sand	Silt	Clay	Unrubbed	Rubbed			
Of	-	-	-	97	90	-	-	-
Om	-	-	-	75	27	-	-	-
Omz	-	-	-	24	12	-	-	73
IICgz	27	51	22	-	-	-	-	58

Horizon	pH of Soil H2O	pH CaCl2	pH H2O	CaCO3 eq. (%)	Org. C. (%)	Total N (%)	C/N
Of	-	4.1	-	-	53.43	0.54	98
Om	-	5.2	-	-	65.06	1.41	46
Omz	-	5.7	-	-	54.19	1.05	52
IICgz	-	6.4	-	-	-	-	-

Horizon	TEC (me/100g)	Exchange Cations (me/100g)				Base Sat. (%)	Ash (%)	Pyrophos. Index
		Na	K	Ca	Mg			
Of	101.7	0.4	1.2	17.6	2.2	13	1.4	3
Om	151.1	0.1	0.2	95.5	13.1	43	10.5	20
Omz	149.2	0.2	0.2	122.6	11.8	54	30.0	85
IICgz	19.3	0.06	0.3	20.6	3.2	75	-	-

DESCRIPTION OF A PROFILE IN THE MIKKWA SOIL GROUP - SITE M79-10

Soil Unit: MKW1
Location: NE5-102-15-W4
Classification: Fibric Organic Cryosol
Landform:
  Genetic Material: Bog; forest peat
  Surface Expression: Plateau
Vegetation: Wetland black spruce bog forest

Profile Description:

Of - 0 to 42 cm; very pale brown; sphagnum peat; non-decomposed; few wood fragments.

Ofz1 - 42 to 116 cm; pale brown; sphagnum-forest peat; slightly decomposed; high ice content; few wood fragments.

Ofz2 - 116 to 160 cm; brown; fen-sphagnum peat; slightly decomposed.

Omz1 - 160 to 242 cm; very dark brown; forest peat; moderately decomposed; few wood fragments; high ice content.

Omz2 - 242 to 300 cm; very dark brown; forest-sphagnum peat; moderately decomposed; few wood fragments; high ice content.

Omz3 - 300 to 316 cm; black; moderately decomposed, fine, amorphous peat.

IICgz - 316+ cm; gray; sandy loam.

ANALYSIS OF SOIL AT SITE M79-10

Horizon	Particle Size Distribution (%)			Fiber Content (%)		Water Capacity (%w/w)	Volume Wt. (g/cm3)	Ice (%w/v)
	Sand	Silt	Clay	Unrubbed	Rubbed			
Of	-	-	-	100	100	-	-	-
Ofz1	-	-	-	72	61	-	-	78
Ofz2	-	-	-	76	56	-	-	-
Omz1	-	-	-	56	26	-	-	81
Omz2	-	-	-	51	21	-	-	79
Omz3	-	-	-	31	20	-	-	-
IICgz	69	23	8	-	-	-	-	-

Horizon	pH of Soil H20	pH CaCl2	pH H20	CaCO3 eq. (%)	Org. C. (%)	Total N (%)	C/N
Of	-	3.8	-	-	50.16	0.50	100
Ofz1	-	4.0	-	-	54.14	0.79	69
Ofz2	-	5.0	-	-	55.66	0.99	56
Omz1	-	5.5	-	-	50.11	1.00	50
Omz2	-	5.5	-	-	52.96	1.01	53
Omz3	-	5.8	-	-	38.51	1.34	29
IICgz	-	5.6	-	-	-	-	-

Horizon	TEC (me/100g)	Exchange Cations (me/100g)				Base Sat. (%)	Ash (%)	Pyrophos. Index
		Na	K	Ca	Mg			
Of	140.4	0.3	1.6	9.0	1.1	5	1.9	3
Ofz1	91.0	0.3	0.4	37.6	1.1	26	3.5	9
Ofz2	90.4	0.4	0.4	63.1	5.5	46	4.7	10
Omz1	142.9	1.7	0.2	95.1	10.4	45	9.5	35
Omz2	147.6	1.2	0.2	116.8	10.7	52	12.1	39
Omz3	112.6	0.6	0.1	88.2	7.8	52	36.9	45
IICgz	-	-	-	-	-	-	-	-

DESCRIPTION OF A PROFILE IN THE MIKKWA SOIL GROUP - SITE M79-11

Soil Unit:	Sampled in KNZ1 unit
Location:	SE3-87-6-W4
Classification:	Mesic Organic Cryosol
Landform:	
Genetic Material:	Bog; sphagnum peat
Surface Expression:	Plateau
Vegetation:	Wetland black spruce bog forest; black spruce, Labrador tea

Profile Description:

Of - 0 to 45 cm; pale brown; sphagnum peat, non-decomposed; very few roots and wood fragments.

Omz - 45 to 165 cm; brown; sphagnum fen peat; slightly decomposed.

Om - 165 to 365 cm; brown; slightly to moderately decomposed sphagnum peat.

IICg - 365+ cm; gray; sandy loam to sandy clay loam.

ANALYSIS OF SOIL AT SITE M79-11

Horizon	Particle Size Distribution (%)			Fiber Content (%)		Water Capacity (%w/w)	Volume Wt. (g/cm3)	Ice (%w/v)
	Sand	Silt	Clay	Unrubbed	Rubbed			
Of	-	-	-	100	95	-	-	-
Omz	-	-	-	71	30	-	-	-
Om	-	-	-	-	-	-	-	-
IICg	-	-	-	-	-	-	-	-

Horizon	pH of Soil H20	pH CaCl2	pH H20	CaC03 eq. (%)	Org. C. (%)	Total N (%)	C/N
Of	-	3.8	-	-	56.58	0.50	113
Omz	-	4.0	-	-	51.63	0.74	69
Om	-	-	-	-	-	-	-
IICg	-	-	-	-	-	-	-

Horizon	TEC (me/100g)	Exchange Cations (me/100g)				Base Sat. (%)	Ash (%)	Pyrophos. Index
		Na	K	Ca	Mg			
Of	156.8	0.02	0.9	5.5	0.0	2	1.9	2
Omz	137.7	0.1	0.2	21.0	2.2	10	2.8	15
Om	-	-	-	-	-	-	-	-
IICg	-	-	-	-	-	-	-	-

DESCRIPTION OF A PROFILE IN THE MIKKWA SOIL GROUP - SITE M79-13

Soil Unit: MKW1

Location: NE21-95-8-W4

Classification: Mesic Organic Cryosol

Landform:

- Genetic Material: Bog; sphagnum and forest peat.
- Surface Expression: Plateau; strongly mounded microrelief

Vegetation: Wetland black spruce bog forest; black spruce, Labrador tea, sphagnum mosses, lichens

Profile Description:

Of1 - 0 to 20 cm; pale brown; sphagnum peat; non to slightly decomposed; original plant structure; spongy.

Of2 - 20 to 40 cm; brown; sphagnum peat; slightly to moderately decomposed; few wood fragments.

Omz1 - 40 to 50 cm; brown; sphagnum forest peat; moderately decomposed; few wood fragments.

Omz2 - 50 to 65 cm; dark brown; forest sphagnum peat; moderately to well decomposed.

Omz3 - 65 to 90 cm; dark brown; forest peat; moderately to well decomposed.

Omz4 - 90 to 105 cm; brown; moderately to well decomposed; fine peat showing no original plant structures.

Omz5 - 105 to 115 cm; brown; forest peat; moderately to well decomposed; plenty of wood fragments.

Ofz - 115 to 145 cm; dark brown; forest peat; slightly to moderately decomposed; plenty of wood fragments.

Omz6 - 145 - 163 cm; dark brown; forest-sphagnum peat; moderately decomposed; very few wood fragments.

Omz7 - 163 to 220 cm; very dark brown; forest peat; moderately decomposed; few wood fragments.

Om - 220+ cm; no sample obtained.

ANALYSIS OF SOIL AT SITE M79-13

Horizon	Particle Size Distribution (%)			Fiber Content (%)		Water Capacity (%w/w)	Volume Wt. (g/cm3)	Ice (%w/v)
	Sand	Silt	Clay	Unrubbed	Rubbed			
Of1	-	-	-	88	76	-	-	-
Of2	-	-	-	86	37	-	-	-
Omz1	-	-	-	59	34	-	0.082	57
Omz2	-	-	-	46	13	-	-	-
Omz3	-	-	-	36	12	-	-	-
Omz4	-	-	-	41	17	-	-	-
Omz5	-	-	-	52	33	-	-	-
Ofz	-	-	-	67	42	-	-	-
Omz6	-	-	-	56	34	-	-	-
Omz7	-	-	-	58	21	-	-	-
Om	-	-	-	-	-	-	-	-

Horizon	pH of Soil H20	pH CaCl2	pH H20	CaCO3 eq. (%)	Org. C. (%)	Total N (%)	C/N
Of1	-	3.3	-	-	52.19	0.69	76
Of2	-	3.8	-	-	64.86	1.12	58
Omz1	-	4.0	-	-	51.13	1.10	47
Omz2	-	4.7	-	-	50.60	1.47	34
Omz3	-	4.9	-	-	48.58	1.44	34
Omz4	-	5.0	-	-	51.62	1.78	29
Omz5	-	5.1	-	-	51.07	1.73	29
Ofz	-	5.1	-	-	53.32	1.24	43
Omz6	-	5.2	-	-	49.86	1.19	42
Omz7	-	5.2	-	-	51.48	1.39	37
Om	-	-	-	-	-	-	-

Horizon	TEC (me/ 100g)	Exchange Cations (me/100g)				Base Sat. (%)	Ash (%)	Pyrophos. Index
		Na	K	Ca	Mg			
Of1	140.1	0.0	1.0	18.4	2.2	9	2.5	4
Of2	160.7	0.0	0.1	40.9	5.6	29	1.6	13
Omz1	153.3	0.2	0.2	55.7	6.7	25	2.3	8
Omz2	196.2	0.01	0.1	113.7	12.2	39	9.7	29
Omz3	222.8	0.1	0.1	130.7	14.1	39	13.3	38
Omz4	191.1	0.1	0.1	116.3	14.7	41	10.5	11
Omz5	-	-	-	-	-	-	11.1	10
Ofz	179.0	0.1	0.2	103.0	12.9	39	10.0	7
Omz6	169.8	0.1	0.2	114.2	16.0	46	10.0	9
Omz7	181.5	0.1	0.2	102.7	14.3	39	10.7	7
Om	-	-	-	-	-	-	-	-

DESCRIPTION OF A PROFILE IN THE MIKKWA SOIL GROUP - SITE M79-15

Soil Unit: MKW1

Location: NW6-85-16-W4

Classification: Mesic Organic Cryosol

Landform:

Genetic Material: Bog; forest peat

Surface Expression: Plateau; strongly mounded microrelief

Site Features: Bog plateau with collapse scars

Vegetation: Wetland black spruce bog forest; black spruce, Labrador tea, cowberry, feathermosses

Profile Description:

Om1 - 0 to 50 cm; very dark brown; forest peat; moderately decomposed; plenty of wood fragments.

Om2 - 50 to 80 cm; dark brown; forest peat; moderately decomposed; fine particles and fibres; some charcoal fragments; few wood fragments.

Omz1 - 80 to 110 cm; dark brown; forest peat; moderately decomposed; few wood fragments.

Omz2 - 110 to 170 cm; dark brown; fen peat; moderately to well decomposed; fine particles.

Omz3 - 170 cm to 220 cm; very dark brown; moderately to well decomposed; fine particles.

Ohz1 - 220 to 290 cm; black; well decomposed; very fine fibres.

Ohz2 - 290 to 325 cm; black; well decomposed; very fine fibres.

IICgz - 325 to 370 cm; gray; sandy loam.

ANALYSIS OF SOIL AT SITE M79-15

Horizon	Particle Size Distribution (%)			Fiber Content (%)		Water Capacity (%w/w)	Volume Wt. (g/cm3)	Ice (%w/v)
	Sand	Silt	Clay	Unrubbed	Rubbed			
Om1	-	-	-	69	29	-	-	-
Om2	-	-	-	63	29	-	-	-
Omz1	-	-	-	51	24	-	-	-
Omz2	-	-	-	45	19	-	-	-
Omz3	-	-	-	42	21	-	-	-
Ohz1	-	-	-	30	6	-	-	-
Ohz2	-	-	-	36	7	-	-	-
IICgz	53	35	12	-	-	-	-	-

Horizon	pH of Soil H2O	pH CaCl2	pH H2O	CaCO3 eq. (%)	Org. C. (%)	Total N (%)	C/N
Om1	-	4.0	-	-	66.30	1.65	40
Om2	-	4.4	-	-	57.26	2.01	28
Omz1	-	4.9	-	-	49.26	2.20	22
Omz2	-	5.3	-	-	47.94	3.14	15
Omz3	-	5.3	-	-	53.51	3.00	18
Ohz1	-	5.6	-	-	50.87	3.69	14
Ohz2	-	5.6	-	-	46.00	3.69	12
IICgz	-	7.1	-	-	-	-	-

Horizon	TEC (me/100g)	Exchange Cations (me/100g)				Base Sat. (%)	Ash (%)	Pyrophos. Index
		Na	K	Ca	Mg			
Om1	208.0	0.05	0.2	72.1	8.7	23	7.6	15
Om2	196.7	0.1	0.1	78.0	14.9	28	7.8	7
Omz1	161.3	2.2	0.1	74.7	15.3	34	9.7	5
Omz2	153.3	3.4	0.1	89.2	12.6	41	8.9	6
Omz3	147.6	3.6	0.1	87.2	10.6	41	8.1	7
Ohz1	166.8	9.3	0.1	97.6	13.3	41	11.0	20
Ohz2	182.9	4.4	0.1	104.8	13.7	40	18.6	70
IICgz	-	-	-	-	-	-	-	-

DESCRIPTION OF A PROFILE IN THE MIKKWA SOIL GROUP - SITE M79-19

Soil Unit: MKW1

Location: NW4-95-15-W4

Classification: Mesic Organic Cryosol

Landform:

  Genetic Material: Bog; forest peat

  Surface Expression: Plateau

Site Features: Low peat plateau rising about 0.5 m above surrounding terrain

Vegetation: Wetland black spruce bog forest; black spruce, Labrador tea, sphagnum mosses

Profile Description:

Of - 0 to 55 cm; pale brown; sphagnum forest peat; slightly decomposed.

Om - 55 to 70 cm; dark brown; forest peat; moderately decomposed; fine fibres, very few wood fragments.

Omz1 - 70 to 100 cm; dark brown; forest peat; moderately decomposed.

Omz2 - 100 to 140 cm; dark brown; forest peat; moderately decomposed.

Omz3 - 140 to 155 cm; very dark brown; moderately decomposed; fibres too fine to determine origin.

IICgz - 155 to 200 cm; gray; silty clay loam.

ANALYSIS OF SOIL AT SITE M79-19

Horizon	Particle Size Distribution (%)			Fiber Content (%)		Water Capacity (%w/w)	Volume Wt. (g/cm3)	Ice (%w/v)
	Sand	Silt	Clay	Unrubbed	Rubbed			
Of	-	-	-	84	79	-	-	-
Om	-	-	-	68	31	-	-	-
Omz1	-	-	-	66	33	-	-	-
Omz2	-	-	-	71	37	-	-	-
Omz3	-	-	-	-	-	-	-	-
IICgz	6	63	31	-	-	-	-	-

Horizon	pH of Soil H2O	pH CaCl2	pH H2O	CaCO3 eq. (%)	Org. C. (%)	Total N (%)	C/N
Of	-	4.1	-	-	41.56	0.96	43
Om	-	3.7	-	-	48.53	0.99	49
Omz1	-	3.9	-	-	48.45	0.76	64
Omz2	-	4.2	-	-	49.38	1.04	48
Omz3	-	4.6	-	-	31.54	1.29	24
IICgz	-	5.5	-	-	-	-	-

Horizon	TEC (me/ 100g)	Exchange Cations (me/100g)				Base Sat. (%)	Ash (%)	Pyrophos. Index
		Na	K	Ca	Mg			
Of	149.2	0.0	0.5	28.8	0.0	12	5.3	9
Om	180.3	0.5	0.1	45.4	2.7	16	6.8	46
Omz1	225.8	0.2	0.1	61.2	4.6	18	6.8	68
Omz2	206.1	0.2	0.1	78.7	6.3	25	10.9	49
Omz3	131.7	0.2	0.2	48.6	6.4	25	43.1	80
IICgz	25.1	0.1	0.2	12.9	3.8	41	-	-

DESCRIPTION OF A PROFILE IN THE MIKKWA SOIL GROUP - SITE M79-21

Soil Unit: MKW1

Location: NE1-95-17-W4

Classification: Mesic Organic Cryosol

Landform:

Genetic Material: Bog; sphagnum and forest peat

Surface Expression: Plateau

Vegetation: Wetland black spruce bog forest; black spruce, Labrador tea, sphagnum mosses

Profile Description:

Of1 - 0 to 10 cm; pale brown; sphagnum peat; non-decomposed.

Of2 - 10 to 50 cm; brown; sphagnum peat; slightly decomposed.

Omz1 - 50 to 100 cm; dark brown; sphagnum forest peat; moderately to well decomposed; plentiful wood fragments.

Omz2 - 100 to 140 cm; dark brown and black; forest-fen peat; moderately to well decomposed; few wood fragments.

Omz3 - 140 to 190 cm; very dark brown and black; forest peat; well decomposed; common charcoal fragments.

IICgz - 190 to 250 cm; gray; silty clay.

ANALYSIS OF SOIL AT SITE M79-21

Horizon	Particle Size Distribution (%) Sand	Silt	Clay	Fiber Content (%) Unrubbed	Rubbed	Water Capacity (%w/w)	Volume Wt. (g/cm3)	Ice (%w/v)
Of1	-	-	-	94	92	-	-	-
Of2	-	-	-	100	68	-	-	-
Omz1	-	-	-	47	20	-	-	-
Omz2	-	-	-	49	15	-	-	-
Omz3	-	-	-	35	11	-	-	-
IICgz	-	49	51	-	-	-	-	-

Horizon	pH of Soil H2O	pH CaCl2	pH H20	CaCO3 eq. (%)	Org. C. (%)	Total N (%)	C/N
Of1	-	3.8	-	-	48.68	0.72	68
Of2	-	4.4	-	-	48.15	0.91	53
Omz1	-	4.4	-	-	53.11	0.84	63
Omz2	-	4.7	-	-	48.99	1.78	27
Omz3	-	5.1	-	-	43.58	2.09	21
IICgz	-	6.6	-	-	-	-	-

Horizon	TEC (me/100g)	Exchange Cations (me/100g) Na	K	Ca	Mg	Base Sat. (%)	Ash (%)	Pyrophos. Index
Of1	162.2	0.0	1.2	33.2	4.5	14	4.9	6
Of2	190.1	0.0	0.4	84.8	17.1	32	8.7	16
Omz1	156.9	0.2	0.2	70.6	17.2	34	8.6	49
Omz2	206.7	0.3	0.2	124.7	14.7	32	13.2	53
Omz3	204.8	0.2	0.1	95.6	14.2	32	29.3	70
IICgz	28.4	0.1	0.7	17.9	7.3	55	-	-

DESCRIPTION OF A PROFILE IN THE MILDRED SOIL GROUP - SITE M77-1

Soil Unit: MIL1

Location: NE5-101-9-W4

Classification: Eluviated Eutric Brunisol

Landform:

Genetic Material: Sandy glaciofluvial veneer overlying morainal material

Surface Expression: Inclined; very gentle slope

Site Features: Mid-slope position; north aspect; well-drained; high perviousness; moderately stony

Vegetation: Upland jack pine forest; jack pine, rose

Profile Description:

LFH - 5 to 0 cm; slightly to moderately decomposed leaves and needles; plentiful, fine and medium, horizontal roots; clear wavy boundary.

Ae - 0 to 8 cm; grayish brown (10YR 5/2 d; 10YR 3/2 m); loamy sand; single grain; loose; few, very fine to medium, and very few, coarse, horizontal roots; 20 to 30% coarse fragments; clear, wavy boundary.

Btj - 8 to 38 cm; brown (7.5YR 4/4 d; 7.5YR 3/3 m); sandy loam; amorphous; soft; few, very fine to medium, oblique roots; 10 to 30% coarse fragments.

BCk - 38 to 105 cm; yellowish brown (10YR 5/8 d; 6.5YR 4/4 m); sand; single grain; loose; very few roots; 10 to 30% coarse fragments; numerous gravelly and cobbly tar sand fragments; abrupt, wavy boundary.

Ck - 105 to 111 cm; pale brown (10YR 6/3 d; 10YR 4/3.5 m); fine sand; single grain; soft; very few roots; less than 5% coarse fragments; abrupt, wavy boundary.

IICk1 - 111 to 119 cm; light reddish brown (5YR 6/2 d; 5YR 4/3 m); clay loam; massive; friable; very few roots; less than 10% coarse fragments; pink laminations; clear, wavy boundary.

IICk2 - 119 to 126 cm; pinkish gray (5YR 6/2 d; 5YR 4/3 m); silty clay loam; massive; friable; very few roots; less than 10% coarse fragments; clear, wavy boundary.

IIICk1 - 126 to 138 cm; pinkish gray (7.5YR 6/2 d; 7.5YR 4/2 m); loam; massive; friable; very few roots; less than 10% coarse fragments; pink bands; clear, smooth boundary.

IIICk2 - 138+ cm; brown (10YR 5/3 d; 10YR 3/3 m); sandy loam; massive; very friable; very few roots; less than 10% coarse fragments.

ANALYSIS OF SOIL AT SITE M77-1

Horizon	Particle Size Distribution (%)									pH	pH
	Sand	VCS	CS	MS	FS	VFS	Silt	Clay	Fine C	CaCl2	H2O
LFH	-	-	-	-	-	-	-	-	-	4.9	5.3
Ae	81	1	10	25	36	9	17	2	1	4.6	5.5
Btj	75	2	16	25	26	6	9	16	9	5.7	6.2
BCk	98	tr	13	59	26	tr	1	1	-	7.2	7.4
Ck	96	5	7	9	64	11	2	2	-	7.2	7.8
IICk1	46	1	3	13	21	8	25	29	7	7.3	7.7
IICk2	7	-	-	-	-	-	60	33	5	7.4	7.7
IIICk1	47	tr	4	15	20	8	35	18	4	7.4	7.8
IIICk2	62	-	-	-	-	-	27	11	2	7.4	7.9

Horizon	CaCO3 eq. (%)	Org. C (%)	Total N (%)	C/N	E.C. (mS/cm)	Sat. H2O (%)	Cations in Saturation Extract (me/l)			
							Na	K	Ca	Mg
LFH	-	33.03	1.46	23	-	-	-	-	-	-
Ae	-	2.79	0.09	31	-	-	-	-	-	-
Btj	-	2.55	0.06	51	-	-	-	-	-	-
BCk	0.1	0.15	0.01	14	-	-	-	-	-	-
Ck	2.3	-	-	-	-	-	-	-	-	-
IICk1	12.0	-	-	-	-	-	-	-	-	-
IICk2	4.2	-	-	-	-	-	-	-	-	-
IIICk1	9.6	-	-	-	-	-	-	-	-	-
IIICk2	8.9	-	-	-	-	-	-	-	-	-

Hori.	TEC (me/100g)	Exchange Cations (me/100g)				Base Sat. (%)	Perm. Charge CEC (me/100g)				Base Sat. (%)
		Na	K	Ca	Mg		Al	Ca	Mg	Total	
LFH	-	-	-	-	-	-	-	-	-	-	-
Ae	6.6	0.04	0.1	4.0	0.6	22	-	-	-	-	-
Btj	4.8	0.03	0.1	6.7	2.3	100	-	-	-	-	-
BCk	1.2	0.01	0.03	1.0	0.4	100	-	-	-	-	-
Ck	-	-	-	-	-	-	-	-	-	-	-
IICk1	-	-	-	-	-	-	-	-	-	-	-
IICk2	-	-	-	-	-	-	-	-	-	-	-
IIICk1	-	-	-	-	-	-	-	-	-	-	-
IIICk2	-	-	-	-	-	-	-	-	-	-	-

DESCRIPTION OF A PROFILE IN THE MILDRED SOIL GROUP - SITE M77-3

Soil Unit: MIL1

Location: NE8-102-9-W4

Classification: Eluviated Dystric Brunisol

Landform:

  Genetic Material: Glaciofluvial; sandy

  Surface Expression: Terrace; nearly level

Site Features: Mid-slope position; north aspect; well-drained; high perviousness, non-stony

Vegetation: Upland jack pine forest; jack pine, blueberry, cowberry, bearberry

Profile Description:

LFH - 4 to 0 cm; undecomposed to moderately decomposed needles and lichens; abundant, fine to medium, horizontal roots; clear, smooth boundary.

Ahe - 0 to 3 cm; dark grayish brown (10YR 3.5/2 d; 5YR 2.5/2 m); sand; single grain; loose; plentiful, very fine to coarse, horizontal roots; clear, wavy boundary.

Ae - 3 to 9 cm; brown (10YR 5/3 d; 10YR 3/3 m); loamy sand; single grain; plentiful, very fine to coarse, horizontal roots; very friable; gradual, wavy boundary.

AB - 9 to 17 cm; yellowish brown (10YR 5/4 d; 10YR 3/4 m); sandy loam; single grain; very friable; plentiful, very fine to medium, horizontal roots; gradual, wavy boundary.

Bm - 17 to 27 cm; yellowish brown (10YR 5/6 d; 10YR 3/6 m); sandy loam; weak, medium subangular blocky; very friable; few, very fine to medium, oblique roots; gradual, smooth boundary.

BC - 27 to 51 cm; brownish yellow (10YR 5.5/7 d; 10YR 4/6 m); sand; single grain; loose; very few, very fine and fine, oblique roots; diffuse, smooth boundary.

C - 51+ cm; light yellowish brown (10YR 6/4 d; 10YR 4/3 m); sand; single grain; loose; very few roots.

C - at 100 cm; light yellowish brown (10YR 5.5/4 d; 10YR 4/4 m); sand; single grain; loose; very few roots.

ANALYSIS OF SOIL AT SITE M77-3

Horizon	Particle Size Distribution (%) Sand	VCS	CS	MS	FS	VFS	Silt	Clay	Fine C	pH CaCl2	pH H2O
LFH	-	-	-	-	-	-	-	-	-	5.0	5.4
Ahe	87	4	27	42	12	2	13	0	-	4.9	5.6
Ae	77	3	23	37	11	3	22	1	1	5.1	6.0
AB	64	4	19	28	9	4	33	3	2	4.8	5.6
Bm	69	2	16	31	15	5	26	5	3	4.6	5.7
BC	97	3	23	58	13	tr	3	0	-	4.8	5.7
C	98	6	39	41	12	tr	2	0	-	4.8	5.8
C	98	3	18	46	31	tr	2	0	-	5.1	6.0

Horizon	CaCO3 eq. (%)	Org. C (%)	Total N (%)	C/N	E.C. (mS/cm)	Sat. H2O (%)	Cations in Saturation Extract (me/l) Na	K	Ca	Mg
LFH	-	36.42	1.05	35	-	-	-	-	-	-
Ahe	-	1.37	0.07	20	-	-	-	-	-	-
Ae	-	0.38	0.02	19	-	-	-	-	-	-
AB	-	0.40	0.03	13	-	-	-	-	-	-
Bm	-	0.38	0.02	19	-	-	-	-	-	-
BC	-	-	-	-	-	-	-	-	-	-
C	-	-	-	-	-	-	-	-	-	-
C	-	-	-	-	-	-	-	-	-	-

Hori.	TEC (me/100g)	Exchange Cations (me/100g) Na	K	Ca	Mg	Base Sat. (%)	Perm. Charge CEC (me/100g) Al	Ca	Mg	Total	Base Sat. (%)
LFH	86.4	1.4	2.8	50.9	5.9	71	2.2	67.5	7.0	76.7	97
Ahe	3.9	0.0	0.1	5.1	0.4	100	0.03	5.1	0.5	5.6	99
Ae	1.3	0.0	0.1	1.8	0.4	100	0.04	1.6	0.3	1.9	98
AB	4.4	0.02	0.1	1.8	0.4	51	0.4	1.9	0.4	2.7	85
Bm	3.9	0.01	0.03	1.0	0.2	32	0.7	1.3	0.2	2.2	68
BC	1.1	0.02	0.02	0.4	0.1	45	0.1	0.3	0.1	0.5	80
C	0.8	0.01	0.01	0.3	0.05	46	0.1	0.4	0.3	0.8	88
C	0.9	0.04	0.02	0.4	0.1	64	0.04	0.5	0.1	0.6	94

DESCRIPTION OF A PROFILE IN THE MILDRED SOIL GROUP - SITE M77-26

Soil Unit: MIL1

Location: NE12-100-8-W4

Classification: Eluviated Dystric Brunisol (Mildred series)

Landform:

- Genetic Material: Glaciofluvial; sandy
- Surface Expression: Undulating; very gentle slopes

Site Features: Lower slope position; south aspect; rapidly drained; high perviousness; non-stony

Vegetation: Upland jack pine forest; jack pine, bearberry lichens

Profile Description:

LFH - 1 to 0 cm; slightly to moderately decomposed needles and lichens; gradual, smooth boundary.

Ahe - 0 to 5 cm; dark brown (10YR 4/3 d; 10YR 3/2.5 m); sand; single grain; loose; few, very fine and fine, vertical roots; gradual, smooth boundary.

Bm1 - 5 to 25 cm; light yellowish brown (10YR 6/5 d; 10YR 4/6 m); sand; single grain; loose; few, very fine and fine, vertical roots; less than 5% coarse fragments; diffuse, smooth boundary.

Bm2 - 25 to 55 cm; brownish yellow (10YR 6/6 d; 10YR 4/6 m); sand; single grain; loose; very few, very fine and fine, vertical roots; less than 5% coarse fragments; gradual, smooth boundary.

BC - 55 to 90 cm; yellowish brown (10YR 5.5/4 d; 10YR 3.5/4 m); fine sand; single grain; loose; very few roots; less than 5% coarse fragments; diffuse, smooth boundary.

C - 90 to 120 cm; brown; (10YR 5/3 d; 10YR 3/2 m); fine sand; single grain; loose; very few roots; less than 5% coarse fragments.

ANALYSIS OF SOIL AT SITE M77-26

Horizon	Particle Size Distribution (%) Sand	VCS	CS	MS	FS	VFS	Silt	Clay	Fine C	pH CaCl2	pH H2O
LFH	-	-	-	-	-	-	-	-	-	4.4	4.9
Ahe	92	tr	7	34	45	5	6	2	1	5.2	6.2
Bm1	88	tr	7	31	43	6	10	2	1	5.1	6.2
Bm2	95	1	13	36	39	6	2	3	2	5.0	6.2
BC	95	tr	2	26	62	5	3	2	1	5.2	6.3
C	95	tr	tr	6	80	8	3	2	1	5.1	6.2

Horizon	CaCO3 eq. (%)	Org. C (%)	Total N (%)	C/N	E.C. (mS/ cm)	Sat. H2O (%)	Cations in Saturation Extract (me/l) Na	K	Ca	Mg
LFH	-	3.01	0.11	27	-	-	-	-	-	-
Ahe	-	0.36	0.02	18	-	-	-	-	-	-
Bm1	-	0.12	0.01	12	-	-	-	-	-	-
Bm2	-	0.17	0.00	-	-	-	-	-	-	-
BC	-	-	-	-	-	-	-	-	-	-
C	-	-	-	-	-	-	-	-	-	-

Hori.	TEC (me/ 100g)	Exchange Cations (me/100g) Na	K	Ca	Mg	Base Sat. (%)	Perm. Charge CEC (me/100g) Al	Ca	Mg	Total	Base Sat. (%)
LFH	18.0	0.1	0.6	5.1	0.2	33	-	-	-	-	-
Ahe	1.6	0.0	0.04	0.9	0.2	67	-	-	-	-	-
Bm1	1.0	0.01	0.04	0.5	0.1	68	-	-	-	-	-
Bm2	0.7	0.0	0.05	0.5	0.2	100	-	-	-	-	-
BC	-	-	-	-	-	-	-	-	-	-	-
C	-	-	-	-	-	-	-	-	-	-	-

DESCRIPTION OF A PROFILE IN THE MILDRED SOIL GROUP - SITE M77-39

Soil Unit: MIL1

Location: SE19-93-10-W4

Classification: Eluviated Dystric Brunisol (Mildred series)

Landform:

Genetic Material: Glaciofluvial; sandy

Surface Expression: Undulating; gentle slopes

Site Features: Lower slope position; west aspect
well-drained; high perviousness
non-stony

Vegetation: Upland jack pine forest; jack pine, bearberry, lichens

Profile Description:

LFH - 1 to 0 cm; very dark grayish brown (10YR 3/2 m); slightly decomposed needles and lichens; clear, wavy boundary.

Ahe - 0 to 5 cm; dark brown (10YR 4/3 m); sand; single grain; loose; abundant, very fine to medium, horizontal roots; gradual, smooth boundary.

AB - 5 to 11 cm; dark yellowish brown (10YR 4/4 m); sand; single grain; loose; plentiful, very fine to medium, oblique roots; diffuse, smooth boundary.

Bm - 11 to 56 cm; yellowish brown (10YR 5/6 m); sand; single grain; loose; very few roots; diffuse, smooth boundary.

BC - 56 to 86 cm; brownish yellow (10YR 6/6 m); sand; single grain; loose; no roots; diffuse, smooth boundary.

C - 86+ cm; yellow (10YR 7/6 m); fine sand; single grain; loose; no roots; less than 10% coarse fragments.

ANALYSIS OF SOIL AT SITE M77-39

Horizon	Particle Size Distribution (%)									pH CaCl2	pH H2O
	Sand	VCS	CS	MS	FS	VFS	Silt	Clay	Fine C		
LFH	-	-	-	-	-	-	-	-	-	3.9	4.5
Ahe	96	tr	2	51	41	2	4	0	-	-	5.5
AB	94	tr	2	45	44	3	6	0	-	-	5.8
BM	91	tr	1	45	42	3	8	1	-	-	5.8
BC	92	1	1	44	44	2	8	0	-	-	5.8
C	97	tr	1	28	66	2	3	0	-	-	6.0

Horizon	CaCO3 eq. (%)	Org. C (%)	Total N (%)	C/N	E.C. (mS/cm)	Sat. H2O (%)	Cations in Saturation Extract (me/l)			
							Na	K	Ca	Mg
LFH	-	42.12	0.83	51	-	-	-	-	-	-
Ahe	-	1.08	0.03	36	0.1	28	0.3	0.1	0.6	0.4
AB	-	0.55	0.015	37	0.1	31	0.2	0.2	0.6	0.3
Bm	-	0.03	0.003	10	0.1	20	0.3	0.2	0.1	0.1
BC	-	0.04	0.004	10	0.1	22	0.5	0.2	0.2	0.2
C	-	0.04	0.003	13	-	-	-	-	-	-

Hori.	TEC (me/100g)	Exchange Cations (me/100g)				Base Sat. (%)	Perm. Charge CEC (me/100g)				Base Sat. (%)
		Na	K	Ca	Mg		Al	Ca	Mg	Total	
LFH	65.5	0.02	0.9	16.7	1.7	30	-	-	-	-	-
Ahe	3.5	0.01	0.05	1.1	0.2	39	-	-	-	-	-
AB	2.4	0.02	0.05	1.2	0.2	61	-	-	-	-	-
Bm	1.3	0.04	0.03	0.5	0.2	59	-	-	-	-	-
BC	1.0	0.01	0.02	0.3	0.1	43	-	-	-	-	-
C	0.7	0.01	0.02	0.5	0.1	90	-	-	-	-	-

DESCRIPTION OF A PROFILE IN THE MILDRED SOIL GROUP - SITE M77-40

Soil Unit: MIL1

Location: SE19-93-10-W4

Classification: Eluviated Dystric Brunisol

Landform:

- Genetic Material: Glaciofluvial; sandy
- Surface Expression: Undulating; very gentle slopes

Site Features: Mid-slope position; northeast aspect; well-drained; high perviousness; non-stony

Vegetation: Upland mixed forest; aspen, birch, jack pine, blueberry

Profile Description:

LFH - 9 to 0 cm; very dark grayish brown (10YR 3/2 m); slightly to moderately decomposed leaves and needles; abundant, fine to medium, horizontal roots; clear, smooth boundary.

Ahe - 0 to 2 cm; light brownish gray (10YR 6/2 m) mixed with very dark yellowish brown (10YR 3/2 m); fine sand; single grain; loose; abundant, very fine to medium, horizontal roots; clear, wavy boundary.

Ae - 2 to 10 cm; light brownish gray (10YR 6/2 m); fine sand; single grain; loose; abundant, very fine to medium, horizontal roots; clear, smooth boundary.

Bm - 10 to 35 cm; yellowish brown (10YR 5/6 m); fine sand; single grain; few, very fine and fine, oblique roots; diffuse, wavy boundary.

BC - 35 to 57 cm; transitional.

C - 57 to 100 cm; grayish brown (2.5Y 5/2 m); fine sand; single grain; loose; some patches of tar sand.

IIC - 100 to 110 cm; hard; black, tar sand layer underlain by glacial materials to a depth of at least 6 m.

ANALYSIS OF SOIL AT SITE M77-40

Horizon	Particle Size Distribution (%) Sand	VCS	CS	MS	FS	VFS	Silt	Clay	Fine C	pH CaCl2	pH H2O
LFH	-	-	-	-	-	-	-	-	-	4.5	4.5
Ahe	92	1	3	15	64	9	7	1	-	-	4.5
Ae	90	tr	2	14	64	10	10	-	-	-	4.9
Bm	89	1	3	15	62	8	10	1	-	-	5.7
BC	92	tr	1	11	68	12	4	4	-	-	5.8
C	88	0	tr	3	64	21	7	5	-	-	5.3
IIC	-	-	-	-	-	-	-	-	-	-	-
C150cm	93	-	-	-	-	-	3	4	tr	-	5.9
C300cm	90	-	-	-	-	-	6	4	tr	-	5.6
C400cm	87	-	-	-	-	-	8	5	tr	-	5.9
C600cm	92	-	-	-	-	-	4	4	tr	-	7.8

Horizon	CaCO3 eq. (%)	Org. C (%)	Total N (%)	C/N	E.C. (mS/cm)	Sat. H2O (%)	Cations in Saturation Extract (me/l) Na	K	Ca	Mg
LFH	-	24.41	1.02	24	-	-	-	-	-	-
Ahe	-	3.11	0.136	23	0.3	55	0.3	0.5	3.4	1.9
Ae	-	0.51	0.023	22	0.1	27	0.2	0.1	1.2	0.7
Bm	-	0.31	0.013	24	0.1	24	0.6	0.05	0.8	0.7
BC	-	0.32	0.006	53	0.1	25	0.2	0.1	0.9	0.5
C	-	2.11	0.025	84	0.2	28	1.0	0.1	0.7	0.6
IIC	-	-	-	-	-	-	-	-	-	-
C150cm	-	0.54	0.008	68	-	-	-	-	-	-
C300cm	-	1.1	0.016	69	-	-	-	-	-	-
C400cm	-	5.91	-	-	-	-	-	-	-	-
C600cm	0.6	0.59	0.01	62	-	-	-	-	-	-

Hori.	TEC (me/100g)	Exchange Cations (me/100g) Na	K	Ca	Mg	Base Sat. (%)	Perm. Charge CEC (me/100g) Al	Ca	Mg	Total	Base Sat. (%)
LFH	48.8	0.05	1.7	25.9	4.3	32	2.2	10.0	3.3	15.5	86
Ahe	11.5	0.02	0.1	4.4	0.6	44	-	-	-	-	-
Ae	2.1	0.02	0.03	1.0	0.2	60	-	-	-	-	-
Bm	2.0	0.03	0.03	0.8	0.3	58	-	-	-	-	-
BC	1.6	0.03	0.03	0.7	0.3	66	-	-	-	-	-
C	2.8	0.04	0.04	1.0	0.4	53	-	-	-	-	-
IIC	-	-	-	-	-	-	-	-	-	-	-
C150cm	2.3	0.01	0.05	1.3	0.5	81	-	-	-	-	-
C300cm	2.9	0.02	0.05	1.5	0.6	75	-	-	-	-	-
C400cm	5.9	0.05	0.1	4.8	1.2	100	-	-	-	-	-
C600cm	2.4	0.02	0.04	3.9	0.9	100	-	-	-	-	-

DESCRIPTION OF A PROFILE IN THE MILDRED SOIL GROUP - SITE M79-4

Soil Unit:	MIL1
Location:	SE2-115-5-W4
Classification:	Eluviated Eutric Brunisol
Landform:	
Genetic Material:	Glaciofluvial; sandy over sandy skeletal
Surface Expression:	Inclined, very gentle slopes
Site Features:	Mid slope position; south-east aspect; very rapidly drained; high perviousness; slightly wind eroded (pitted)
Vegetation:	Upland jack pine forest; jack pine, aspen, bearberry, lichens

Profile Description:

LF	- 1 to 0 cm; black; very thin layer of slightly to moderately decomposed needles and lichens; few, fine to coarse, horizontal and oblique roots; abrupt, slightly wavy boundary.
Ae	- 0 to 15 cm; light brownish gray (10YR 6/2 m); sand; single grain; loose; few, fine and medium, oblique roots; less than 5% rounded coarse fragments; abrupt, wavy boundary.
Bfj	- 15 to 29 cm; brown to strong brown (7.5YR 5/5 m); sand; single grain; loose; few, fine and medium, oblique and vertical roots; less than 5% rounded coarse fragments; gradual, smooth boundary.
Bm	- 29 to 40 cm; light yellowish brown (10YR 6/5 m); sand; single grain; loose; very few roots; less than 5% rounded coarse fragments; blotches of stronger brown color throughout; diffuse, smooth boundary.
BC	- 49 to 66 cm; light yellowish brown (10YR 6/4 m); sand; single grain; loose; very few roots; less than 5% rounded coarse fragments; abrupt, smooth boundary.
IIC1	- 66 to 74 cm; light yellowish brown (10YR 6/4 m); gravelly sand; single grain; loose; no roots; about 50% coarse fragments; gradual, smooth boundary.
IIC2	- 74+ cm; light yellowish brown (10YR 6/4 m); gravelly sand; single grain; loose; no roots; about 50% coarse fragments consisting of gravel and stones.

ANALYSIS OF SOIL AT SITE M79-4

Horizon	Particle Size Distribution (%)									pH	pH
	Sand	VCS	CS	MS	FS	VFS	Silt	Clay	Fine C	CaCl2	H2O
LF	-	-	-	-	-	-	-	-	-	-	-
Ae	95	1	7	49	37	1	1	4	-	4.5	5.6
Bfj	94	0	3	49	41	tr	2	4	-	5.1	5.6
Bm	98	0	3	55	38	tr	2	-	-	5.8	5.8
BC	99	tr	8	75	16	tr	1	-	-	5.1	5.8
IIC1	97	10	20	52	14	2	3	-	-	6.2	6.6
IIC2	-	-	-	-	-	-	-	-	-	-	-

Horizon	CaCO3 eq. (%)	Org. C (%)	Total N (%)	C/N	E.C. (mS/cm)	Sat. H2O (%)	Cations in Saturation Extract (me/l)			
							Na	K	Ca	Mg
LF	-	-	-	-	-	-	-	-	-	-
Ae	-	0.20	0.01	20	-	-	-	-	-	-
Bfj	-	0.20	0.01	20	-	-	-	-	-	-
Bm	-	0.18	0.01	18	-	-	-	-	-	-
BC	-	-	-	-	-	-	-	-	-	-
IIC1	-	-	-	-	-	-	-	-	-	-
IIC2	-	-	-	-	-	-	-	-	-	-

Hori.	TEC (me/100g)	Exchange Cations (me/100g)				Base Sat. (%)	Perm. Charge CEC (me/100g)				Base Sat. (%)
		Na	K	Ca	Mg		Al	Ca	Mg	Total	
LF	-	-	-	-	-	-	-	-	-	-	-
Ae	0.9	0.01	0.01	0.2	0.0	22	-	-	-	-	-
Bfj	1.0	0.04	0.01	0.2	0.0	25	-	-	-	-	-
Bm	0.3	0.03	0.0	0.2	0.0	77	-	-	-	-	-
BC	0.2	0.03	0.01	0.2	0.0	100	-	-	-	-	-
IIC1	0.4	0.02	0.0	0.4	0.0	100	-	-	-	-	-
IIC2	-	-	-	-	-	-	-	-	-	-	-

DESCRIPTION OF A PROFILE IN THE NAMUR SOIL GROUP - SITE M77-19

Soil Unit:	NAM2
Location:	NE13-99-11-W4
Classification:	Gleyed Regosol
Landform:	
Genetic Material:	Fluvial; very fine-clayey
Surface Expression:	Fan; almost level
Site Features:	Imperfectly drained; medium perviousness; non-stony
Vegetation:	Bottomland and riparian forest; aspen, white spruce, willow, horsetail

Profile Description:

LFH - 6 to 0 cm; slightly to moderately decomposed leaves.

Cgj1 - 0 to 18 cm; dark grayish brown (10YR 4/2.5 d; 10YR 3/2 m); heavy clay; moderate, fine subangular blocky; firm; diffuse, smooth boundary.

Cgj2 - 18 to 38 cm; dark grayish brown (10YR 4.5/2 d; 10YR 2/2 m); heavy clay; moderate, fine subangular blocky; firm; diffuse, smooth boundary.

Cgj3 - 38 to 65 cm; brown (10YR 5/3 d; 10YR 3/2 m); heavy clay; moderate, fine subangular blocky; firm; diffuse, smooth boundary.

Cgj4 - 65 to 92 cm; silty clay; moderate, fine subangular blocky; firm.

ANALYSIS OF SOIL AT SITE M77-19

Horizon	Particle Size Distribution (%)									pH	pH
	Sand	VCS	CS	MS	FS	VFS	Silt	Clay	Fine C	CaCl2	H2O
LFH	-	-	-	-	-	-	-	-	-	5.7	6.0
Cgj1	3	-	-	-	-	-	29	68	30	4.6	4.9
Cgj2	2	-	-	-	-	-	38	60	26	4.9	5.2
Cgj3	1	-	-	-	-	-	27	72	25	4.7	5.0
Cgj4	1	-	-	-	-	-	40	59	28	4.7	4.9

Horizon	CaCO3 eq. (%)	Org. C (%)	Total N (%)	C/N	E.C. (mS/cm)	Sat. H2O (%)	Cations in Saturation Extract (me/l)			
							Na	K	Ca	Mg
LFH	-	38.31	2.03	19	-	-	-	-	-	-
Cgj1	-	2.39	0.21	11	0.2	80	0.4	0.3	1.2	0.6
Cgj2	-	1.80	0.17	11	0.3	70	0.5	0.3	1.6	0.8
Cgj3	-	1.79	0.17	11	0.3	72	0.5	0.3	1.7	0.8
Cgj4	-	1.83	0.20	9	0.4	68	0.6	0.3	1.8	0.9

Hori.	TEC (me/100g)	Exchange Cations (me/100g)				Base Sat. (%)	Perm. Charge CEC (me/100g)				Base Sat. (%)
		Na	K	Ca	Mg		Al	Ca	Mg	Total	
LFH	98.2	1.2	6.6	61.6	10.8	81	3.9	87.5	21.4	112.8	97
Cgj1	31.5	0.1	1.2	14.5	7.7	74	1.1	16.7	20.8	38.6	97
Cgj2	26.8	0.1	1.1	14.1	7.4	85	0.2	16.7	14.5	31.4	99
Cgj3	26.8	0.1	1.1	13.7	7.2	82	0.3	15.8	17.8	33.9	99
Cgj4	32.7	0.2	1.2	15.8	8.4	78	0.5	17.5	15.9	33.9	99

DESCRIPTION OF A PROFILE IN THE NAMUR SOIL GROUP - SITE M78-17

Soil Unit:	NAM2*
Location:	NW22-103-11-W4
Classification:	Gleyed Eluviated Dystric Brunisol
Landform:	
Genetic Material:	Coarse-loamy fluvial veneer overlying sandy glaciofluvial deposits
Surface Expression:	Fan; almost level
Site Features:	Upper slope position; southeast aspect; imperfectly to poorly drained; medium to high perviousness; non-stony
Vegetation:	Bottomland and riparian deciduous shrub; aspen, white birch, willow

Profile Description:

LFH - 15 to 0 cm; dark brown and black; spongy, moderately to well decomposed leaf layer; plentiful, very fine to medium, and few, coarse, horizontal roots; abrupt, wavy boundary.

Aeg - 0 to 14 cm; dark brown (7.5YR 3/2 m) and yellowish red (5YR 4/6 m); many coarse, distinct mottles of yellowish hues; silt loam; moderate, medium platy; very friable; few, fine and medium, horizontal and oblique roots; clear, wavy boundary.

ABg - 14 to 32 cm; yellowish brown and dark yellowish brown (10YR 5/4 and 4.5/6 m); many, coarse, distinct mottles of yellowish hues; fine sandy loam; moderate, coarse platy; friable; few, fine and medium, oblique roots; diffuse, wavy boundary.

Bmg - 32 to 70 cm; brown (10YR 5/4 m); many, coarse, distinct, yellowish brown (10YR 4/6 m) mottles; fine sandy loam; laminated; single grain; very friable; very few roots; diffuse, smooth boundary.

Cg - 70 to 90 cm; light brownish gray (10YR 6/2 m); many, coarse, faint to distinct, yellowish brown (10YR 5/4 m) mottles; fine sandy loam; laminated; single grain; very friable; very few roots.

* occurs at boundary of areas of Namur and Heart soils; soil properties are transitional between the two.

ANALYSIS OF SOIL AT SITE M78-17

Horizon	Particle Size Distribution (%)									pH	pH
	Sand	VCS	CS	MS	FS	VFS	Silt	Clay	Fine C	CaCl2	H2O
LFH	-	-	-	-	-	-	-	-	-	4.7	4.9
Aeg	32	0	0	5	16	11	58	10	-	5.1	5.5
ABg	73	0	0	14	46	13	18	9	-	5.2	5.8
Bmg	82	0	0	22	51	9	10	8	-	5.3	5.9
Cg	82	0	0	7	71	4	9	9	-	5.2	5.8

Horizon	CaCO3 eq. (%)	Org. C (%)	Total N (%)	C/N	E.C. (mS/cm)	Sat. H2O (%)	Cations in Saturation Extract (me/l)			
							Na	K	Ca	Mg
LFH	-	16.84	1.19	14	-	-	-	-	-	-
Aeg	-	0.51	0.05	10	-	-	-	-	-	-
ABg	-	0.34	0.03	11	-	-	-	-	-	-
Bmg	-	0.22	0.02	11	-	-	-	-	-	-
Cg	-	0.17	0.02	9	-	-	-	-	-	-

Hori.	TEC (me/100g)	Exchange Cations (me/100g)				Base Sat. (%)	Perm. Charge CEC (me/100g)				Base Sat. (%)
		Na	K	Ca	Mg		Al	Ca	Mg	Total	
LFH	60.6	0.1	1.4	27.8	4.6	56	3.3	107.5	23.0	133.8	98
Aeg	10.5	0.1	0.2	3.7	1.1	49	0.0	12.5	3.2	15.7	100
ABg	7.3	0.04	0.1	2.8	0.9	53	0.0	9.3	2.3	11.8	100
Bmg	7.6	0.04	0.1	3.1	1.1	57	0.0	6.8	2.5	9.3	100
Cg	7.0	0.05	0.1	3.0	1.0	59	0.1	5.8	2.3	8.2	99

DESCRIPTION OF MATERIALS IN A ROUGH BROKEN LAND TYPE - SITE M77-32

Soil Unit:	Sampled in BKN1 unit
Location:	SW1-101-12-4
Classification:	Nonsoil
Landform:	
Genetic Material:	Undifferentiated; clayey
Surface Expression:	Inclined; strong to very strong slopes
Site Features:	Upper and mid-slope positions; southwest aspect; rapidly drained; low perviousness; slightly rocky
Vegetation:	Non-vegetated

Profile Description:

C(1) - At 3 to 4 m from top of scarp; gray (10YR 5/1 d; 10YR 3/2 m); clay; very sticky; weakly weathered shale with spherical stone and boulder-sized concretions containing gypsum.

C(2) - At 5 m from top of scrap; very dark gray (10YR 3.5/1 d; 10YR 2/1 m); silt; flaky structure; soft; weakly weathered shale.

C(3) - At 10 m from top of scarp; gray (10YR 5/1 d; 10YR 3/1 m); silty clay; very sticky; weakly weathered shale with concretions.

ANALYSIS OF MATERIALS AT SITE M77-32

Horizon	Particle Size Distribution (%)									pH CaCl2	pH H2O
	Sand	VCS	CS	MS	FS	VFS	Silt	Clay	Fine C		
C(1)	3	-	-	-	-	-	52	45	19	3.2	3.3
C(2)	11	-	-	-	-	-	81	8	7	7.1	7.3
C(3)	1	-	-	-	-	-	48	51	15	4.0	4.1

Horizon	CaCO3 eq. (%)	Org. C (%)	Total N (%)	C/N	E.C. (mS/cm)	Sat. H2O (%)	Cations in Saturation Extract (me/l)			
							Na	K	Ca	Mg
C(1)	-	2.23	0.15	15	3.4	72	2.9	0.6	28.9	22.0
C(2)	-	8.00	0.30	27	-	-	-	-	-	-
C(3)	-	1.87	0.17	11	-	-	-	-	-	-

Hori.	TEC (me/100g)	Exchange Cations (me/100g)				Base Sat. (%)	Perm. Charge CEC (me/100g)				Base Sat. (%)
		Na	K	Ca	Mg		Al	Ca	Mg	Total	
C(1)	21.3	1.2	0.5	27.2	3.3	100	-	-	-	-	-
C(2)	17.7	10.8	0.8	131.2	14.1	100	-	-	-	-	-
C(3)	15.7	0.1	0.2	14.2	3.5	100	-	-	-	-	-

DESCRIPTION OF A PROFILE IN THE RUTH LAKE SOIL GROUP - SITE M76-1

Soil Unit: RUT1

Location: SW25-88-8-W4

Classification: Orthic Gray Luvisol

Landform:

Genetic Material: Coarse-loamy glaciofluvial meltwater channel sands

Surface Expression: Undulating to rolling; gentle to moderate slopes

Site Features: Mid-slope position; north aspect; moderately well-drained; medium perviousness; non-stony; slightly eroded

Profile Description:

LFH - not described.

Ae1 - 0 to 5 cm; gray (10YR 6/1 m); sandy loam; weak, fine granular; very friable; diffuse, wavy boundary.

Ae2 - 5 to 11 cm; grayish brown (10YR 5/2 m); sandy loam; weak, fine subangular blocky; friable; gradual, irregular boundary.

Bt1 - 11 to 25 cm; dark yellowish brown (10YR 4/4 m); sandy loam; weak, fine subangular blocky; friable; gradual, irregular boundary.

Bt2 - ; dark yellowish brown (10YR 6/4 m); sandy loam; weak, fine subangular blocky; friable; diffuse, irregular boundary.

C - ; yellowish brown (10YR 5/6 m); loamy sand, single grain, loose.

ANALYSIS OF SOIL AT SITE M76-1

Horizon	Particle Size Distribution (%)									pH	pH
	Sand	VCS	CS	MS	FS	VFS	Silt	Clay	Fine C	CaCl2	H2O
LFH	-	-	-	-	-	-	-	-	-	-	-
Ae1	71	-	-	-	-	-	26	3	1	4.5	5.5
Ae2	67	-	-	-	-	-	29	4	2	4.7	5.4
Bt1	62	-	-	-	-	-	31	7	-	4.6	5.1
Bt2	73	-	-	-	-	-	13	14	8	5.8	6.3
C	83	-	-	-	-	-	12	5	4	6.5	7.3

Horizon	CaCO3 eq. (%)	Org. C (%)	Total N (%)	C/N	E.C. (mS/cm)	Sat. H2O (%)	Cations in Saturation Extract (me/l)			
							Na	K	Ca	Mg
LFH	-	-	-	-	-	-	-	-	-	-
Ae1	-	-	-	-	-	-	-	-	-	-
Ae2	-	-	-	-	-	-	-	-	-	-
Bt1	-	-	-	-	-	-	-	-	-	-
Bt2	-	-	-	-	-	-	-	-	-	-
C	0.5	-	-	-	-	-	-	-	-	-

Hori.	TEC (me/100g)	Exchange Cations (me/100g)				Base Sat. (%)	Perm. Charge CEC (me/100g)				Base Sat. (%)
		Na	K	Ca	Mg		Al	Ca	Mg	Total	
LFH	-	-	-	-	-	-	-	-	-	-	-
Ae1	2.7	0.02	0.1	1.5	0.4	74	-	-	-	-	-
Ae2	5.0	0.01	0.1	2.8	0.7	72	-	-	-	-	-
Bt1	12.0	0.04	0.3	6.5	2.4	77	-	-	-	-	-
Bt2	7.6	0.03	0.2	5.9	1.5	100	-	-	-	-	-
C	3.5	0.01	0.1	3.4	1.1	100	-	-	-	-	-

DESCRIPTION OF A PROFILE IN THE RUTH LAKE SOIL GROUP - SITE M76-2

Soil Unit:	RUT1
Location:	NE13-7-88-W4
Classification:	Eluviated Dystric Brunisol
Landform:	
Genetic Material:	Glaciofluvial; sandy
Surface Expression:	Undulating; very gentle slopes
Site Features:	Upper slope position; west aspect; rapidly drained; high perviousness; non-stony; slightly eroded

Profile Description:

LFH - not described.

Ae - 0 to 10 cm; light gray (10YR 7/1 m); sandy loam; single grain; loose; clear, smooth boundary.

Bm1 - --- ; dark reddish brown (5YR 3/4 m); sand; single grain; loose; gradual, smooth boundary.

Bm2 - --- ; strong brown (7.5YR 5/6 m); sand; single grain; loose; gradual, smooth boundary.

C - --- ; yellowish brown (10YR 5/4 m); sand; single grain; loose.

ANALYSIS OF SOIL AT SITE M76-2

Horizon	Particle Size Distribution (%) Sand	VCS	CS	MS	FS	VFS	Silt	Clay	Fine C	pH CaCl2	pH H2O
LFH	-	-	-	-	-	-	-	-	-	-	-
Ae	69	-	-	-	-	-	27	4	1	3.8	4.6
Bm1	92	-	-	-	-	-	0	8	3	4.8	5.5
Bm2	96	-	-	-	-	-	0	4	2	5.0	5.9
C	97	-	-	-	-	-	0	3	1	4.9	5.9

Horizon	CaCO3 eq. (%)	Org. C (%)	Total N (%)	C/N	E.C. (mS/cm)	Sat. H2O (%)	Cations in Saturation Extract (me/l) Na	K	Ca	Mg

Hori.	TEC (me/100g)	Exchange Cations (me/100g) Na	K	Ca	Mg	Base Sat. (%)	Perm. Charge CEC (me/100g) Al	Ca	Mg	Total	Base Sat. (%)
LFH	-	-	-	-	-	-	-	-	-	-	-
Ae	2.3	0.03	0.04	0.8	0.2	46	-	-	-	-	-
Bm1	4.7	0.01	0.1	1.5	0.5	45	-	-	-	-	-
Bm2	1.9	0.02	0.1	0.8	0.2	59	-	-	-	-	-
C	1.1	0.00	0.05	0.3	0.2	50	-	-	-	-	-

DESCRIPTION OF A PROFILE IN THE RUTH LAKE SOIL GROUP - SITE M76-7

Soil Unit:	RUT1
Location:	NE25-90-8-W4
Classification:	Eluviated Dystric Brunisol
Landform:	
Genetic Material:	Glaciofluvial meltwater channel deposits; coarse-loamy
Surface Expression:	Undulating; very gentle slopes
Site Features:	Upper slope position; well-drained; high perviousness; non-stony

Profile Description:

LFH - mainly leaves and needles.

Ae1 - 0 to 5 cm; light gray (10YR 7/1 m); sandy loam (gravelly); very weak, fine granular; very friable; clear, smooth boundary.

Ae2 - 5 to 20 cm; light gray (10YR 7/2 m); sandy loam; very weak, fine granular, very friable; clear, smooth boundary.

Bm - 20 to 50 cm; brown (7.5YR 5/4 m); loamy sand; very weak, fine subangular blocky; very friable; gradual, smooth boundary.

C - 50+ cm; reddish brown (2.5YR 5/4 m); sandy loam; structureless; very friable.

ANALYSIS OF SOIL AT SITE M76-7

Horizon	Particle Size Distribution (%) Sand	VCS	CS	MS	FS	VFS	Silt	Clay	Fine C	pH $CaCl_2$	pH H_2O
LFH	-	-	-	-	-	-	-	-	-	-	-
Ae1	54	-	-	-	-	-	43	3	0	3.7	4.2
Ae2	68	-	-	-	-	-	28	4	1	3.8	4.6
Bm	86	-	-	-	-	-	11	3	1	4.5	5.3
C	72	-	-	-	-	-	20	8	4	4.4	5.1

Horizon	$CaCO_3$ eq. (%)	Org. C (%)	Total N (%)	C/N	E.C. (mS/cm)	Sat. H_2O (%)	Cations in Saturation Extract (me/l) Na	K	Ca	Mg

Hori.	TEC (me/100g)	Exchange Cations (me/100g) Na	K	Ca	Mg	Base Sat. (%)	Perm. Charge CEC (me/100g) Al	Ca	Mg	Total	Base Sat. (%)
LFH	-	-	-	-	-	-	-	-	-	-	-
Ae1	-	-	-	-	-	-	-	-	-	-	-
Ae2	-	-	-	-	-	-	-	-	-	-	-
Bm	-	-	-	-	-	-	-	-	-	-	-
C	-	-	-	-	-	-	-	-	-	-	-

DESCRIPTION OF A PROFILE IN THE RUTH LAKE SOIL GROUP - SITE M76-12

Soil Unit: RUT1

Location: SE24-88-7-W4

Classification: Gleyed Eluviated Eutric Brunisol

Landform:

  Genetic Material: Morainal material modified by meltwater channel processes; coarse-loamy

  Surface Expression: Undulating; nearly level to gentle slopes

Site Features: Upper slope position; moderately well-drained; medium perviousness; non-stony

Profile Description:

LFH - 7 to 0 cm; mainly moderately decomposed leaves with some wood fragments.

Ahe - 0 to 8 cm; dark grayish brown (10YR 4/2 m); loam; few, medium, distinct mottles (7.5YR 5/6 m); moderate, medium granular; friable; gradual, smooth boundary.

Bm - 8 to 35 cm; dark yellowish brown (10YR 4/4 m); loam; few medium, distinct mottles (7.5YR 5/6 m); moderate, fine to medium subangular blocky; friable; gradual, smooth boundary.

BCg - 35+ cm; dark yellowish brown (10YR 3/4 m); loam; few, medium, distinct mottles (7.5YR 5/6 m); moderate, fine to medium subangular blocky; friable.

ANALYSIS OF SOIL AT SITE M76-12

Horizon	Particle Size Distribution (%)										
	Sand	VCS	CS	MS	FS	VFS	Silt	Clay	Fine C	pH CaCl2	pH H2O
LFH	-	-	-	-	-	-	-	-	-	-	-
Ahe	48	-	-	-	-	-	38	14	6	6.3	7.0
Bm	49	-	-	-	-	-	37	14	5	6.3	6.9
BCg	49	-	-	-	-	-	28	23	10	7.3	7.7

Horizon	CaCO3 eq. (%)	Org. C (%)	Total N (%)	C/N	E.C. (mS/cm)	Sat. H2O (%)	Cations in Saturation Extract (me/l)			
							Na	K	Ca	Mg
LFH	-	-	-	-	-	-	-	-	-	-
Ahe	-	-	-	-	-	-	-	-	-	-
Bm	-	-	-	-	-	-	-	-	-	-
BCg	6.8	-	-	-	-	-	-	-	-	-

Hori.	TEC (me/100g)	Exchange Cations (me/100g)				Base Sat. (%)	Perm. Charge CEC (me/100g)				Base Sat. (%)
		Na	K	Ca	Mg		Al	Ca	Mg	Total	
LFH	-	-	-	-	-	-	-	-	-	-	-
Ahe	19.0	0.3	0.2	14.0	3.4	94	-	-	-	-	-
Bm	8.9	0.1	0.1	6.3	1.8	93	-	-	-	-	-
BCg	-	-	-	-	-	-	-	-	-	-	-

DESCRIPTION OF A PROFILE IN THE RUTH LAKE SOIL GROUP - SITE M76-13

Soil Unit: RUT1

Location: SE24-88-8-W4

Classification: Gleyed Gray Luvisol

Landform:

Genetic Material: Morainal material modified by meltwater channel processes; fine-loamy

Surface Expression: Undulating; nearly level to gentle slopes

Site Features: Upper slope position, moderately well to imperfectly drained; medium to low perviousness, non-stony

Profile Description:

LFH - 10 to 0 cm; moderately decomposed moss with some leaves and wood fragments.

Ae - 0 to 7 cm; light brownish gray (10YR 6/2 m); sandy loam; moderate, fine to medium platy; friable; clear, smooth boundary.

Bt1 - 7 to 23 cm; dark yellowish brown (10YR.4/6 m); sandy loam; moderate, fine to medium subangular blocky; friable; gradual, smooth boundary.

Bt2 - 23 to 45 cm; dark yellowish brown (10YR 4/4 m); sandy clay loam; moderate, fine to medium subangular blocky; friable; gradual, smooth boundary.

Cgj - 45+ cm; dark yellowish brown (10YR 4/4 m); clay loam; common, medium, distinct mottles (7.5YR 5/8 m); massive; sticky.

ANALYSIS OF SOIL AT SITE M76-13

Horizon	Particle Size Distribution (%)									pH	pH
	Sand	VCS	CS	MS	FS	VFS	Silt	Clay	Fine C	CaCl2	H2O
LFH	-	-	-	-	-	-	-	-	-	-	-
Ae	51	-	-	-	-	-	42	7	-	3.9	4.6
Bt1	54	-	-	-	-	-	29	17	4	4.2	4.8
Bt2	45	-	-	-	-	-	26	29	5	4.5	4.8
Cgj	43	-	-	-	-	-	27	30	20	5.0	5.3

Horizon	CaCO3 eq. (%)	Org. C (%)	Total N (%)	C/N	E.C. (mS/cm)	Sat. H2O (%)	Cations in Saturation Extract (me/l)			
							Na	K	Ca	Mg

Hori.	TEC (me/100g)	Exchange Cations (me/100g)				Base Sat. (%)	Perm. Charge CEC (me/100g)				Base Sat. (%)
		Na	K	Ca	Mg		Al	Ca	Mg	Total	
LFH	-	-	-	-	-	-	-	-	-	-	-
Ae	4.9	0.01	0.1	1.0	0.0	23	-	-	-	-	-
Bt1	8.9	0.01	0.2	2.8	1.0	45	-	-	-	-	-
Bt2	17.3	0.04	0.3	7.6	3.3	65	-	-	-	-	-
Cgj	19.1	0.1	0.3	11.0	4.4	83	-	-	-	-	-

DESCRIPTION OF A PROFILE IN THE RUTH LAKE SOIL GROUP - SITE M76-15

Soil Unit: RUT1

Location: NE18-89-8-W4

Classification: Orthic Gray Luvisol

Landform:

Genetic Material: Morainal material modified by meltwater channel processes; fine-loamy

Surface Expression: Undulating; very gentle slopes

Site Features: Crest position; well-drained; low perviousness; slightly stony

Profile Description:

LFH - 4 to 0 cm.

Ae1 - 0 to 6 cm; light gray (10YR 7/1 m); very fine sandy loam; strong, medium to coarse platy; friable; clear, wavy boundary.

Ae2 - 6 to 10 cm; light brownish gray (10YR 6/2 m); loam; strong, coarse granular; friable; clear, wavy boundary.

Bt1 - 10 to 22 cm; dark yellowish brown (10YR 4/4 m); clay; strong, coarse subangular blocky; firm; clear, wavy boundary.

Bt2 - 22 to 50 cm; dark yellowish brown (10YR 3/4 m); clay; strong, coarse subangular blocky; firm; gradual, wavy boundary.

C - 50+ cm; dark yellowish brown (10YR 4/6 m); loam; massive, firm.

ANALYSIS OF SOIL AT SITE M76-15

Horizon	Particle Size Distribution (%)									pH	pH
	Sand	VCS	CS	MS	FS	VFS	Silt	Clay	Fine C	$CaCl_2$	H_2O
LFH	-	-	-	-	-	-	-	-	-	-	-
Ae1	48	-	-	-	-	-	45	7	2	3.9	4.8
Ae2	48	-	-	-	-	-	41	11	4	4.1	4.9
Bt1	25	-	-	-	-	-	31	44	19	4.3	4.8
Bt2	27	-	-	-	-	-	33	40	27	4.8	5.1
C	44	-	-	-	-	-	27	29	17	5.2	5.5

Horizon	$CaCO_3$ eq. (%)	Org. C (%)	Total N (%)	C/N	E.C. (mS/cm)	Sat. H_2O (%)	Cations in Saturation Extract (me/l)			
							Na	K	Ca	Mg

Hori.	TEC (me/100g)	Exchange Cations (me/100g)				Base Sat. (%)	Perm. Charge CEC (me/100g)				Base Sat. (%)
		Na	K	Ca	Mg		Al	Ca	Mg	Total	
LFH	-	-	-	-	-	-	-	-	-	-	-
Ae1	5.1	0.05	0.1	1.2	0.0	26	-	-	-	-	-
Ae2	5.1	0.03	0.05	1.1	0.05	24	-	-	-	-	-
Bt1	22.2	0.03	0.2	8.4	3.2	53	-	-	-	-	-
Bt2	19.6	0.05	0.2	11.0	3.9	77	-	-	-	-	-
C	16.7	0.1	0.2	11.1	3.6	90	-	-	-	-	-

DESCRIPTION OF A PROFILE IN THE RUTH LAKE SOIL GROUP - SITE M76-16

Soil Unit: Sampled in HRT5 unit

Location: NE8-89-8-W4

Classification: Eluviated Eutric Brunisol

Landform:

Genetic Material: Glaciofluvial outwash and meltwater channel deposits modified by eolian processes; coarse-loamy

Surface Expression: Undulating; nearly level to gentle slopes

Site Features: Crest of very gentle slope; rapidly drained; high perviousness; non-stony

Profile Description:

LFH - 5 to 0 cm; moderately decomposed leaves and needles with some wood fragments.

Ae1 - 0 to 8 cm; light gray (10YR 7/1 m); gravelly sand; single grain; loose; clear, wavy boundary.

Ae2 - 8 to 17 cm; light yellowish brown (10YR 6/4 m); gravelly silt loam; single grain; loose; clear, wavy boundary.

Bm - 17 to 38 cm; dark yellowish brown (10YR 4/6 m); gravelly sand; single grain; loose; gradual, wavy boundary.

BC - 38+ cm; dark yellowish brown (10YR 4/4 m); gravelly sandy loam; single grain; loose.

ANALYSIS OF SOIL AT SITE M76-16

Horizon	Particle Size Distribution (%) Sand	VCS	CS	MS	FS	VFS	Silt	Clay	Fine C	pH CaCl2	pH H2O
LFH	-	-	-	-	-	-	-	-	-	-	-
Ae1	84	-	-	-	-	-	14	2	1	4.2	4.9
Ae2	27	-	-	-	-	-	54	19	3	4.4	5.0
Bm	89	-	-	-	-	-	3	8	2	5.2	6.1
BC	80	-	-	-	-	-	5	15	7	6.1	6.8

Horizon	CaCO3 eq. (%)	Org. C (%)	Total N (%)	C/N	E.C. (mS/cm)	Sat. H2O (%)	Cations in Saturation Extract (me/l) Na	K	Ca	Mg

Hori.	TEC (me/100g)	Exchange Cations (me/100g) Na	K	Ca	Mg	Base Sat. (%)	Perm. Charge CEC (me/100g) Al	Ca	Mg	Total	Base Sat. (%)
LFH	-	-	-	-	-	-	-	-	-	-	-
Ae1	1.6	0.00	0.04	0.2	0.0	15	-	-	-	-	-
Ae2	7.3	0.03	0.2	2.5	1.0	51	-	-	-	-	-
Bm	3.2	0.01	0.1	1.3	0.4	57	-	-	-	-	-
BC	7.0	0.01	0.1	3.3	1.7	73	-	-	-	-	-

DESCRIPTION OF A PROFILE IN THE RUTH LAKE SOIL GROUP - SITE M77-16

Soil Unit:	RUT1
Location:	NW12-94-11-W4
Classification:	Eluviated Dystric Brunisol
Landform:	
Genetic Material:	Weathered tar sand exposed in meltwater channel area; sandy
Surface Expression:	Undulating; gentle slopes
Site Features:	Upper slope position; north aspect; drainage rapid in solum, but impeded by tar sands; high perviousness in solum; non-stony
Vegetation:	Upland mixed forest; white spruce, aspen, blueberry, bunchberry, feathermosses, club mosses

Profile Description:

LFH	- 7 to 0 cm; spongy, slightly to moderately decomposed mat of moss origin; permeated with fungal hyphae; clear, wavy boundary.
Ae	- 0 to 16 cm; gray (10YR 6/1 d; 10YR 3/2 m); fine sand; single grain; loose; clear, wavy boundary.
Bm	- 16 to 43 cm; very dark grayish brown (10YR 3/2 d; 10YR 2/1 m); fine sand; single grain; very friable; diffuse, smooth boundary.
C	- 43+ cm; very dark grayish brown (10YR 3/2 d; 10YR 2/1 m); fine sand; semi-consolidated, weathered tar sand.

ANALYSIS OF SOIL AT SITE M77-16

Horizon	Particle Size Distribution (%)									pH	pH
	Sand	VCS	CS	MS	FS	VFS	Silt	Clay	Fine C	CaCl2	H20
LFH	-	-	-	-	-	-	-	-	-	4.0	4.4
Ae	89	tr	tr	tr	54	34	8	3	-	3.7	4.3
Bm	87	0	tr	1	59	26	9	4	-	3.8	4.3
C	90	0	tr	tr	56	33	6	4	-	4.1	4.8

Horizon	CaC03 eq. (%)	Org. C (%)	Total N (%)	C/N	E.C. (mS/ cm)	Sat. H20 (%)	Cations in Saturation Extract (me/l)			
							Na	K	Ca	Mg
LFH	-	25.83	0.81	32	-	-	-	-	-	-
Ae	-	1.24	0.03	41	-	-	-	-	-	-
Bm	-	6.58	0.06	110	-	-	-	-	-	-
C	-	-	-	-	-	-	-	-	-	-

Hori.	TEC (me/ 100g)	Exchange Cations (me/100g)				Base Sat. (%)	Perm. Charge CEC (me/100g)				Base Sat. (%)
		Na	K	Ca	Mg		Al	Ca	Mg	Total	
LFH	-	-	-	-	-	-					
Ae	2.5	0.02	0.1	0.5	0.2	31	-	-	-	-	-
Bm	2.0	0.0	0.02	0.2	0.1	16	-	-	-	-	-
C	2.0	0.05	0.02	0.2	0.2	24	-	-	-	-	-

DESCRIPTION OF A PROFILE IN THE STEEPBANK SOIL GROUP - SITE M76-3

Soil Unit: Sampled in LVK1 unit

Location: SW2-89-8-W4

Classification: Orthic Luvic Gleysol

Landform:

- Genetic Material: Coarse-loamy glaciofluvial veneer overlying fine-clayey morainal material
- Surface Expression: Undulating; very gentle slopes

Site Features: Lower slope position; poorly drained; medium perviousness; non-stony

Profile Description:

LFH - not described

Aeg - 0 to 7 cm; light brownish gray (10YR 6/2 m); fine sandy loam; common, fine, distinct mottles (5YR 5/6 m); very weak, very fine granular; very friable; clear, smooth boundary.

Btjg - 7 to 25 cm; light yellowish brown (10YR 6/4 m); loam; many medium, prominent mottles (5YR 5/6 m); very weak, very fine to fine granular; very gradual, irregular boundary.

Cg - 25 to 50 cm; yellowish brown (10YR 5/4 m); loamy fine sand; many, medium, prominent mottles (5YR 5/6 m); very weak, very fine to fine granular; very friable; gradual, irregular boundary.

IICg - 50+ cm; brown (10YR 5/3 m); clay; many, medium, prominent mottles (5YR 5/6 m); moderate to strong, medium subangular blocky; firm.

ANALYSIS OF SOIL AT SITE M76-3

Horizon	Particle Size Distribution (%)									pH	pH
	Sand	VCS	CS	MS	FS	VFS	Silt	Clay	Fine C	CaCl2	H2O
LFH	-	-	-	-	-	-	-	-	-	-	-
Aeg	52	-	-	-	-	-	41	7	1	3.9	4.8
Btjg	48	-	-	-	-	-	33	19	2	4.5	5.6
Cg	86	-	-	-	-	-	11	3	2	4.5	5.5
IICg	12	-	-	-	-	-	42	46	13	4.3	4.7

Horizon	CaCO3 eq. (%)	Org. C (%)	Total N (%)	C/N	E.C. (mS/cm)	Sat. H2O (%)	Cations in Saturation Extract (me/l)			
							Na	K	Ca	Mg

Hori.	TEC (me/100g)	Exchange Cations (me/100g)				Base Sat. (%)	Perm. Charge CEC (me/100g)				Base Sat. (%)
		Na	K	Ca	Mg		Al	Ca	Mg	Total	
LFH	-	-	-	-	-	-	-	-	-	-	-
Aeg	4.2	0.02	0.1	0.7	0.3	27	-	-	-	-	-
Btjg	3.4	0.04	0.1	0.8	0.4	39	-	-	-	-	-
Cg	3.4	0.02	0.04	0.9	0.6	46	-	-	-	-	-
IICg	22.3	0.3	0.3	7.8	5.1	61	-	-	-	-	-

DESCRIPTION OF A PROFILE IN THE STEEPBANK SOIL GROUP - SITE M76-11

Soil Unit:	Sampled in RUT1 unit
Location:	SW30-88-8-W4
Classification:	Rego Gleysol, peaty phase
Landform:	
Genetic Material:	Morainal material modified by meltwater channel processes; fine-loamy
Surface Expression:	Undulating; nearly level and gently undulating slopes
Site Features:	Lower, nearly level slope position; poorly drained; medium perviousness; moderately stony

Profile Description:

Om - 25 to 0 cm; dominantly moderately decomposed sphagnum peat; some leaves and needles.

Cg1 - 0 to 30 cm; yellowish brown (10YR 5/4 m); sandy clay loam (gravelly); common, medium, distinct mottles (5YR 5/6 m); massive; slightly sticky; diffuse, smooth boundary.

Cg2 - 30+ cm; yellowish brown (10YR 5/6 m); sandy clay loam (gravelly); common, medium, distinct mottles (5YR 5/6 m); massive; slightly sticky.

ANALYSIS OF SOIL AT SITE M76-11

Horizon	Particle Size Distribution (%)									pH	pH
	Sand	VCS	CS	MS	FS	VFS	Silt	Clay	Fine C	$CaCl_2$	H_2O
Om	-	-	-	-	-	-	-	-	-	-	-
Cgl	52	-	-	-	-	-	27	21	11	6.3	7.2
Cg2	52	-	-	-	-	-	25	23	11	6.8	7.5

Horizon	$CaCO_3$ eq. (%)	Org. C (%)	Total N (%)	C/N	E.C. (mS/cm)	Sat. H_2O (%)	Cations in Saturation Extract (me/l)			
							Na	K	Ca	Mg
Om	-	-	-	-	-	-	-	-	-	-
Cgl	-	-	-	-	-	-	-	-	-	-
Cg2	0.2	-	-	-	-	-	-	-	-	-

Hori.	TEC (me/100g)	Exchange Cations (me/100g)				Base Sat. (%)	Perm. Charge CEC (me/100g)				Base Sat. (%)
		Na	K	Ca	Mg		Al	Ca	Mg	Total	
Om	-	-	-	-	-	-	-	-	-	-	-
Cgl	20.8	0.05	0.2	15.9	5.0	100	-	-	-	-	-
Cg2	15.3	0.04	0.2	14.9	3.7	100	-	-	-	-	-

DESCRIPTION OF A PROFILE IN THE STEEPBANK SOIL GROUP - SITE M78-41

Soil Unit: Sampled in LVK1 unit

Location: NE19-85-15-W4

Classification: Orthic Luvic Gleysol

Landform:

- Genetic Material: Glaciolacustrine veneer overlying morainal material; fine-loamy
- Surface Expression: Level to undulating; nearly level slopes

Site Features: Upper slope position; northwest aspect; imperfectly drained; medium perviousness; non-stony

Vegetation: Upland mixed forest; aspen, black spruce, Labrador tea, club mosses, feathermosses

Profile Description:

LF - 4 to 0 cm; brown and dark brown; slightly to moderately decomposed leaves, needles and mosses.

Ae - 0 to 10 cm; light brownish gray (2.5Y 6/2 m); silt loam; moderate, medium platy; slightly sticky; gradual, smooth boundary.

Aeg - 10 to 22 cm; grayish brown (2.5Y 5/2 m); silt loam; moderate, coarse platy; slightly sticky; clear smooth boundary.

Btg - 22 to 32 cm; dark grayish brown (2.5Y 4/2 m); clay loam; moderate, medium subangular blocky; very sticky; gradual, smooth boundary.

IIBtg - 32 to 55 cm; dark grayish brown (2.5Y 4/2 m); clay loam; strong, fine subangular blocky; very sticky; less than 5% coarse fragments; gradual, smooth boundary.

IICg - 55 to 110 cm; very dark gray (2.5Y 3/0 m); with olive brown (2.5Y 4/4 m); clay loam; mottled; massive; very sticky; less than 5% coarse fragments.

ANALYSIS OF SOIL AT SITE M78-41

Horizon	Particle Size Distribution (%)									pH	pH
	Sand	VCS	CS	MS	FS	VFS	Silt	Clay	Fine C	CaCl2	H2O
LF	-	-	-	-	-	-	-	-	-	4.2	4.8
Ae	26	-	1	5	10	10	62	12	-	4.1	5.0
Aeg	30	-	1	4	11	14	56	14	-	4.6	5.6
Btg	25	-	1	3	11	10	41	34	-	5.2	5.5
IIBtg	25	-	1	2	12	10	43	32	-	5.8	6.1
IICg	25	-	1	2	11	11	46	29	-	6.8	7.3

Horizon	CaCO3 eq. (%)	Org. C (%)	Total N (%)	C/N	E.C. (mS/cm)	Sat. H20 (%)	Cations in Saturation Extract (me/l)			
							Na	K	Ca	Mg
LF	-	39.51	1.75	23	-	-	-	-	-	-
Ae	-	0.75	0.06	13	-	-	-	-	-	-
Aeg	-	0.48	0.05	10	-	-	-	-	-	-
Btg	-	0.51	0.05	10	-	-	-	-	-	-
IIBtg	-	0.42	0.05	8	-	-	-	-	-	-
IICg	-	-	-	-	-	-	-	-	-	-

Hori.	TEC (me/100g)	Exchange Cations (me/100g)				Base Sat. (%)	Perm. Charge CEC (me/100g)				Base Sat. (%)
		Na	K	Ca	Mg		Al	Ca	Mg	Total	
LF	99.2	0.3	3.9	16.8	5.1	26	-	-	-	-	-
Ae	8.9	0.5	0.2	1.6	0.6	33	-	-	-	-	-
Aeg	9.2	0.6	0.2	3.5	2.0	68	-	-	-	-	-
Btg	22.7	1.1	0.4	12.1	8.9	99	-	-	-	-	-
IIBtg	22.7	1.3	0.3	12.4	8.9	101	-	-	-	-	-
IICg	18.0	1.3	0.5	10.3	7.3	108	-	-	-	-	-

DESCRIPTION OF A PROFILE IN THE STEEPBANK SOIL GROUP - SITE M79-1

Soil Unit: Sampled in JSN1 unit

Location: SW19-92-12-W4

Classification: Orthic Luvic Gleysol, peaty phase

Landform:

  Genetic Material: Glaciolacustrine; fine-silty to clayey

  Surface Expression: Almost level to undulating

Site Features: Poorly drained; low perviousness; water table at 1 m.

Vegetation: Bottomland and riparian forest; black spruce, aspen, balsam poplar, willow, grasses

Profile Description:

Oh - 15 to 0 cm; black (7.5 YR 2/0 m); well decomposed; granular; slightly sticky; plentiful fine roots; few medium and coarse roots; abrupt, wavy boundary.

Aeg - 0 to 18 cm; gray (10YR 5/1 m); common, medium, distinct, yellowish brown (10YR 5/4 m) mottles; silt to silty clay loam; moderate, medium platy; friable; plentiful fine and medium roots; clear, wavy boundary.

Btg1 - 18 to 38 cm; brown to dark brown (10YR 4/2 - 4/4 m); silty clay loam; strong, fine, subangular blocky; very sticky; few, fine and medium roots; gradual, smooth boundary.

Btg2 - 38 to 70 cm; brown to dark brown (10YR 4/2 - 4/4 m); silty clay loam; moderate, fine, subangular blocky; very sticky; very few roots; gradual, smooth boundary.

BCsg - 70 to 100 cm; dark grayish brown (10YR 4/2 m) and very dark grayish brown (10YR 3/2 m); silty clay loam; massive; very sticky; some pink bands and light gray spots; very few roots; diffuse, smooth boundary.

Csg - 100 to 135 cm; brown to dark brown (10YR 4/3 m); silty clay loam; massive; very sticky; pink bands and light gray spots; less than 5% coarse fragments; very few roots.

ANALYSIS OF SOIL AT SITE M79-1

Horizon	Particle Size Distribution (%)									pH CaCl2	pH H2O
	Sand	VCS	CS	MS	FS	VFS	Silt	Clay	Fine C		
Oh	-	-	-	-	-	-	-	-	-	6.0	6.4
Aeg	-	-	-	-	-	-	-	-	-	-	-
Btg1	12	-	-	-	-	-	53	35	-	7.6	8.0
Btg2	9	-	-	-	-	-	59	32	-	8.0	8.7
BCsg	6	-	-	-	-	-	61	33	-	8.0	8.4
Csg	6	-	-	-	-	-	58	36	-	8.1	8.5

Horizon	CaCO3 eq. (%)	Org. C (%)	Total N (%)	C/N	E.C. (mS/ cm)	Sat. H2O (%)	Cations in Saturation Extract (me/l)			
							Na	K	Ca	Mg
Oh	-	23.40	1.98	12	-	-	-	-	-	-
Aeg	-	-	-	-	-	-	-	-	-	-
Btg1	-	0.69	0.05	14	-	-	-	-	-	-
Btg2	-	1.19	0.04	30	-	-	-	-	-	-
BCsg	-	-	-	-	-	-	-	-	-	-
Csg	-	-	-	-	-	-	-	-	-	-

Hori.	TEC (me/ 100g)	Exchange Cations (me/100g)				Base Sat. (%)	Perm. Charge CEC (me/100g)				Base Sat. (%)
		Na	K	Ca	Mg		Al	Ca	Mg	Total	
Oh	102.9	11.3	1.4	36.8	32.4	80	-	-	-	-	-
Aeg	-	-	-	-	-	-	-	-	-	-	-
Btg1	18.0	-	-	-	-	-	-	-	-	-	-
Btg2	14.8	-	-	-	-	-	-	-	-	-	-
BCsg	16.5	-	-	-	-	-	-	-	-	-	-
Csg	15.4	-	-	-	-	-	-	-	-	-	-

DESCRIPTION OF A PROFILE IN THE STEEPBANK SOIL GROUP - SITE M79-2

Soil Unit:	STP1
Location:	NW13-99-6-W4
Classification:	Gleyed Gray Luvisol
Landform:	
Genetic Material:	Sandy glaciofluvial veneer overlying coarse-loamy morainal material
Surface Expression:	Undulating; almost level
Site Features:	Mid-slope position; west aspect; poorly drained; medium to low perviousness due to impeding layer
Vegetation:	Wetland black spruce bog forest, and bottomland and riparian forest; black spruce, aspen, willow, Labrador tea, shrubby cinquefoil, cowberry, lichens

Profile Description:

LFH - 6 to 0 cm; black (10YR 2/1 m); mainly moderately decomposed leaf, needle and lichen litter; abundant, fine to coarse, horizontal and oblique roots; abrupt, wavy boundary.

Ae - 0 to 8 cm; light brownish gray (10YR 6/2 m); sand; weak, medium platy; loose; few, fine to coarse, oblique and vertical roots; 5 to 10% coarse fragments; abrupt, wavy boundary.

AB - 8 to 15 cm; yellowish brown (10YR 5/4 m); sandy loam; weak, medium subangular blocky; friable; few, fine and medium, vertical roots; 10 to 20% coarse fragments; clear wavy boundary.

IIBt - 15 to 40 cm; reddish brown (5YR 4.5/3 m); clay loam; strong, fine subangular blocky; sticky; very few, fine and medium, vertical roots; less than 10% coarse fragments; gradual, wavy boundary.

IIIBtgj - 40 to 65 cm; reddish brown (5YR 5.5/3 m); sandy loam; moderate, fine subangular blocky; sticky; very few roots; less than 10% coarse fragments; gradual, wavy boundary.

IIIBCg - 65 to 110 cm; very dark brown (10YR 2.5/2 m); sandy loam; massive; sticky; less than 10% coarse fragments.

ANALYSIS OF SOIL AT SITE M79-2

Horizon	Particle Size Distribution (%)									pH	pH
	Sand	VCS	CS	MS	FS	VFS	Silt	Clay	Fine C	CaCl2	H2O
LFH	-	-	-	-	-	-	-	-	-	5.3	5.6
Ae	97	1	9	40	40	6	1	2	-	6.0	6.8
AB	62	1	6	23	26	6	31	7	-	6.6	7.0
IIBt	37	1	4	14	15	3	27	36	-	6.9	7.4
IIIBtgj	56	1	5	19	24	7	32	12	-	7.3	7.8
IIIBCg	63	3	8	16	28	7	29	8	-	7.5	7.9

Horizon	CaCO3 eq. (%)	Org. C (%)	Total N (%)	C/N	E.C. (mS/cm)	Sat. H2O (%)	Cations in Saturation Extract (me/l)			
							Na	K	Ca	Mg
LFH	-	29.28	1.49	20	-	-	-	-	-	-
Ae	-	0.30	0.02	15	-	-	-	-	-	-
AB	-	0.32	0.03	11	-	-	-	-	-	-
IIBt	-	0.53	0.03	18	-	-	-	-	-	-
IIIBtgj	-	0.68	0.02	34	-	-	-	-	-	-
IIIBCg	-	-	-	-	-	-	-	-	-	-

Hori.	TEC (me/100g)	Exchange Cations (me/100g)				Base Sat. (%)	Perm. Charge CEC (me/100g)				Base Sat. (%)
		Na	K	Ca	Mg		Al	Ca	Mg	Total	
LFH	72.7	0.1	1.0	36.4	15.9	73	-	-	-	-	-
Ae	1.1	0.05	0.01	0.8	0.3	100	-	-	-	-	-
AB	3.4	0.03	0.02	2.5	1.0	100	-	-	-	-	-
IIBt	8.7	0.1	0.2	9.0	6.3	100	-	-	-	-	-
IIIBtgj	4.5	-	-	-	-	-	-	-	-	-	-
IIIBCg	4.5	-	-	-	-	-	-	-	-	-	-

DESCRIPTION OF A PROFILE IN THE STEEPBANK SOIL GROUP - SITE M79-3

Soil Unit: STP1

Location: SE22-94-8-W4

Classification: Orthic Gleysol, peaty phase

Landform:

Genetic Material: Mixed glaciolacustrine, fine-loamy

Surface Expression: Undulating; nearly level, poorly drained; medium perviousness; at time of sampling in mid July, soil temperature at 50 cm was 0°C

Vegetation: Wetland black spruce bog forest community type; black spruce, Labrador tea, willow, cowberry

Profile Description:

Of - 22 to 10 cm; very dark brown (10YR 2/2 m); forest peat; mainly slightly to moderately decomposed leaves and needles; abundant, fine to coarse roots; horizontal and oblique, clear, wavy boundary.

Om - 10 to 0 cm; black (10YR 2/1); moderately decomposed forest peat; granular; plentiful, fine and medium, horizontal and oblique roots; clear, wavy boundary; some mixing and shallow tonguing into horizon below.

ABg - 0 to 3 cm; dark grayish brown (10YR 4/2 m); clay loam; weak, fine and medium subangular blocky; sticky; few, fine and medium, vertical roots; less than 5% coarse fragments; clear, smooth boundary.

Bmg - 3 to 16 cm; brown (10YR 4.5/3 m); loam; weak, medium subangular blocky; sticky; few roots; less than 5% coarse fragments; clear, smooth boundary.

BCg - 16 to 26 cm; brown (10YR 4/3 m); clay loam; massive; very sticky; very few roots; 5 to 10% coarse fragments; diffuse, smooth boundary.

Cg - 26 to 60+ cm; grayish brown (10YR 5/2 m); with brown (10YR 4/3) and bands of light brownish gray (10YR 6/2 m); clay loam; massive; very sticky; 5 to 10% coarse fragments.

ANALYSIS OF SOIL AT SITE M79-3

Horizon	Particle Size Distribution (%)									pH CaCl2	pH H20
	Sand	VCS	CS	MS	FS	VFS	Silt	Clay	Fine C		
Of	-	-	-	-	-	-	-	-	-	4.0	4.5
Om	-	-	-	-	-	-	-	-	-	6.4	6.8
ABg	39	tr	4	12	16	7	32	29	-	6.7	7.1
Bmg	46	-	3	13	22	9	40	14	-	7.6	7.9
BCg	39	-	3	11	17	7	27	34	-	7.5	7.7
Cg	40	tr	3	12	18	7	28	32	-	7.8	8.0

Horizon	CaCO3 eq. (%)	Org. C (%)	Total N (%)	C/N	E.C. (mS/ cm)	Sat. H20 (%)	Cations in Saturation Extract (me/l)			
							Na	K	Ca	Mg
Of	-	45.41	1.60	28	-	-	-	-	-	-
Om	-	41.32	1.82	23	-	-	-	-	-	-
ABg	-	3.49	0.21	17	-	-	-	-	-	-
Bmg	-	0.69	0.03	23	-	-	-	-	-	-
BCg	-	-	-	-	-	-	-	-	-	-
Cg	-	-	-	-	-	-	-	-	-	-

Hori.	TEC (me/ 100g)	Exchange Cations (me/100g)				Base Sat. (%)	Perm. Charge CEC (me/100g)				Base Sat. (%)
		Na	K	Ca	Mg		Al	Ca	Mg	Total	
Of	126.7	0.4	1.5	39.8	9.2	40	-	-	-	-	-
Om	215.0	0.3	0.2	170.9	21.5	90	-	-	-	-	-
ABg	31.5	0.1	0.2	25.2	4.0	94	-	-	-	-	-
Bmg	8.2	-	-	-	-	-	-	-	-	-	-
BCg	18.0	-	-	-	-	-	-	-	-	-	-
Cg	12.0	-	-	-	-	-	-	-	-	-	-

DESCRIPTION OF A PROFILE IN THE SURMONT SOIL GROUP - SITE 78-2

Soil Unit: SRT1

Location: 11-83-13-W4

Classification: Orthic Gray Luvisol (Surmont series)

Landform:

  Genetic Material: Morainal; fine-loamy

  Surface Expression: Hummocky and ridged; gentle slopes

Site Features: Upper slope position; northeast aspect; moderately well drained; medium perviousness; moderately stony

Vegetation: Upland mixed coniferous forest; black spruce, Labrador tea, feathermosses

Profile Description:

LF - 8 to 0 cm; dark brown; slightly to moderately decomposed leaves and mosses; permeated by fungal hyphae; few, very coarse, horizontal, and plentiful, very fine to medium, horizontal roots; abrupt, clear boundary.

Ae - 0 to 9 cm; light gray (10YR 7/2 d); silt loam; strong, fine platy; very friable; few, fine to medium, horizontal roots; 10% coarse fragments; wavy, clear boundary.

AB - 9 to 22 cm; pale brown (10YR 6/3 m); fine sandy loam; weak, medium platy to weak, medium, subangular blocky; friable; few, fine and medium, oblique roots; 10% coarse fragments; gradual, smooth boundary.

Bt1 - 22 to 47 cm; brown (10YR 4/3 m); clay loam; moderate, medium and fine, subangular blocky; slightly sticky; few, fine to coarse, oblique roots; 10% coarse fragments; gradual, smooth boundary.

Bt2 - 47 to 59 cm; brown (10YR 4/3 m); clay loam; sticky; very few, fine and medium, oblique roots; 10% coarse fragments; gradual, smooth boundary.

BC - 59 to 75 cm; dark grayish brown (2.5Y 3.5/2 m); loam; sticky; very few roots; 10% coarse fragments; gradual smooth boundary.

C - 75 to 120 cm; dark grayish brown (2.5Y 4/2 m); loam; sticky; very few roots; 10% coarse fragments.

ANALYSIS OF SOIL AT SITE M78-2

Horizon	Particle Size Distribution (%)									pH	pH
	Sand	VCS	CS	MS	FS	VFS	Silt	Clay	Fine C	CaCl2	H2O
LFH	-	-	-	-	-	-	-	-	-	3.6	4.3
Ae	29	tr	4	10	10	5	66	5	-	3.7	4.7
AB	51	1	7	17	18	8	42	7	-	4.2	5.1
Bt1	38	1	5	11	13	8	34	28	-	4.2	5.2
Bt2	39	1	5	12	14	7	32	29	-	4.2	4.5
BC	39	0	5	12	15	7	35	26	-	4.9	4.5
C	46	1	5	14	18	8	30	24	-	4.4	5.0

Horizon	CaCO3 eq. (%)	Org. C (%)	Total N (%)	C/N	E.C. (mS/cm)	Sat. H2O (%)	Cations in Saturation Extract (me/l)			
							Na	K	Ca	Mg
LFH	-	41.91	1.24	34	-	-	-	-	-	-
Ae	-	0.62	0.04	16	-	-	-	-	-	-
AB	-	0.40	0.03	13	-	-	-	-	-	-
Bt1	-	0.40	0.04	10	-	-	-	-	-	-
Bt2	-	0.34	0.03	11	-	-	-	-	-	-
BC	-	0.41	0.03	14	-	-	-	-	-	-
C	-	-	-	-	-	-	-	-	-	-

Hori.	TEC (me/100g)	Exchange Cations (me/100g)				Base Sat. (%)	Perm. Charge CEC (me/100g)				Base Sat. (%)
		Na	K	Ca	Mg		Al	Ca	Mg	Total	
LFH	83.5	0.1	4.6	20.5	5.9	37	-	-	-	-	-
Ae	7.5	0.04	0.2	0.5	0.3	14	-	-	-	-	-
AB	7.5	0.03	0.1	1.1	0.5	23	-	-	-	-	-
Bt1	22.6	0.1	0.2	4.4	2.9	34	-	-	-	-	-
Bt2	24.2	0.05	0.2	5.2	3.7	38	-	-	-	-	-
BC	24.2	0.1	0.2	5.2	3.5	37	-	-	-	-	-
C	20.4	0.1	0.2	5.2	3.4	44	-	-	-	-	-

DESCRIPTION OF A PROFILE IN THE SURMONT SOIL GROUP - SITE M78-4

Soil Unit: SRT1

Location: NE8-84-11-4

Classification: Brunisolic Gray Luvisol

Landform:

Genetic Material: Coarse-loamy morainal overlying fine-loamy morainal

Surface Expression: Undulating; very gentle slopes

Site Features: Mid-slope position; west aspect; well-drained; medium perviousness; moderately stony

Vegetation: Upland jack pine forest; jack pine, black spruce, Labrador tea, blueberry, lichens

Profile Description:

LF - 4 to 0 cm; dark brown; slightly and moderately decomposed needles and lichens; plentiful, very fine and fine, horizontal roots; abrupt, wavy boundary.

Ae1 - 0 to 18 cm; light gray (10YR 7/1 m); loamy sand; single grain; loose; few, very fine and fine, and very few, coarse, oblique roots; 5% coarse fragments; clear, wavy boundary.

Bm - 18 to 27 cm; strong brown (7.5YR 5/6 m); fine sandy loam; single grain; loose; few, very fine to coarse, oblique roots; 5% coarse fragments; clear, wavy boundary.

Ae2 - 27 to 32 cm; very pale brown (10YR 7/3 m); sand; weak, medium platy; very friable; very few, fine to coarse, oblique roots; 5% coarse fragments; gradual, wavy boundary.

IIBT - 32 to 46 cm; brown (10YR 5.5/3 m); clay loam; weak, fine subangular blocky; slightly sticky; very few, fine to coarse, oblique roots; 5% coarse fragments; gradual, smooth boundary.

IIBC - 46 to 85 cm; olive brown (2.5Y 4/3 m); clay loam; moderate, medium subangular blocky; sticky; very few, fine to coarse, oblique and vertical roots; 5% coarse fragments.

IIC - 85 to 120 cm; dark grayish brown (2.5Y 3.5/2 m); clay loam; massive; sticky; very few roots; 5% coarse fragments.

ANALYSIS OF SOIL AT SITE M78-4

Horizon	Particle Size Distribution (%)									pH CaCl2	pH H2O
	Sand	VCS	CS	MS	FS	VFS	Silt	Clay	Fine C		
LF	-	-	-	-	-	-	-	-	-	3.6	4.1
Ae1	81	1	19	37	21	3	19	-	-	3.6	4.1
Bm	67	1	7	24	27	8	28	5	-	4.3	5.3
Ae2	90	2	15	40	31	2	3	7	-	4.6	5.5
IIBt	44	1	4	12	19	8	32	24	-	4.1	4.8
IIBC	42	1	4	12	18	7	30	28	-	4.3	4.9
IIC	44	tr	4	14	18	7	29	27	-	4.9	5.2

Horizon	CaCO3 eq. (%)	Org. C (%)	Total N (%)	C/N	E.C. (mS/cm)	Sat. H2O (%)	Cations in Saturation Extract (me/l)			
							Na	K	Ca	Mg
LF	-	37.01	1.09	34	-	-	-	-	-	-
Ae1	-	0.42	0.02	21	-	-	-	-	-	-
Bm	-	0.14	0.01	14	-	-	-	-	-	-
Ae2	-	0.23	0.02	12	-	-	-	-	-	-
IIBt	-	0.26	0.03	9	-	-	-	-	-	-
IIBC	-	0.28	0.03	9	-	-	-	-	-	-
IIC	-	-	-	-	-	-	-	-	-	-

Hori.	TEC (me/100g)	Exchange Cations (me/100g)				Base Sat. (%)	Perm. Charge CEC (me/100g)				Base Sat. (%)
		Na	K	Ca	Mg		Al	Ca	Mg	Total	
LF	46.7	0.5	2.9	8.1	1.5	28	-	-	-	-	-
Ae1	2.9	0.0	0.05	0.1	0.05	7	-	-	-	-	-
Bm	2.9	0.0	0.1	0.4	0.2	22	-	-	-	-	-
Ae2	4.3	0.0	0.1	0.2	0.1	9	-	-	-	-	-
IIBt	15.4	0.03	0.2	2.9	1.8	32	-	-	-	-	-
IIBC	23.0	0.04	0.2	4.6	2.9	34	-	-	-	-	-
IIC	27.5	0.06	0.2	5.3	3.4	33	-	-	-	-	-

DESCRIPTION OF A PROFILE IN THE SURMONT SOIL GROUP - SITE M78-57

Soil Unit: SRT1

Location: NW15-85-10-W4

Classification: Orthic Gray Luvisol (Surmont series)

Landform:

Genetic Material: Morainal; fine-loamy to fine-clayey

Surface Expression: Inclined and undulating; very gentle slopes

Site Features: Mid-slope position; west aspect; moderately well to well-drained; medium perviousness; slightly stony

Vegetation: Upland coniferous forest; white spruce, aspen, alder, bunchberry, twin-flower, feathermosses

Profile Description:

LF - 4 to 0 cm; brown; slightly to moderately decomposed needles, leaves and mosses; plenty of roots and fungi.

Ae1 - 0 to 6 cm; gray (10YR 6/1 m); silt loam; strong, fine platy; very friable; less than 5% coarse fragments; clear, wavy boundary.

Ae2 - 6 to 21 cm; brown (10YR 5/3.5 m); loam; strong, medium, platy; very friable; less than 5% coarse fragments; clear, wavy boundary.

AB - 21 to 32 cm; yellowish brown (10YR 5/4 m); clay loam; strong, fine subangular blocky; friable; less than 5% coarse fragments, gradual, smooth boundary.

Bt1 - 32 to 53 cm; dark yellowish brown (10YR 4/3.5 m); clay loam; strong, fine subangular blocky; firm; less than 5% coarse fragments; gradual, smooth boundary.

Bt2 - 53 to 75 cm; dark grayish brown (10YR 4/2 m); clay loam; strong, medium subangular blocky; very firm; less than 5% coarse fragments; gradual, smooth boundary; vertical planes, about 30 cm wide and coated with sand grains, occur throughout the Bt2 and extend into the Bt1 and C.

C - 75 to 120 cm; very dark grayish brown (10YR 3/2 m); clay loam; massive; very firm; less than 5% coarse fragments.

ANALYSIS OF SOIL AT SITE M78-57

Horizon	Particle Size Distribution (%)									pH	pH
	Sand	VCS	CS	MS	FS	VFS	Silt	Clay	Fine C	CaCl2	H2O
LF	-	-	-	-	-	-	-	-	-	7.0	7.2
Ae1	43	tr	3	10	18	12	51	6	-	4.1	4.7
Ae2	35	0	2	7	16	10	47	18	-	4.4	4.7
AB	31	0	2	5	13	11	39	30	-	4.3	4.6
Bt1	23	0	1	3	11	8	40	37	-	4.3	4.3
Bt2	24	0	1	3	12	8	39	37	-	4.3	4.6
C	26	0	1	4	12	9	39	35	-	4.6	4.7

Horizon	CaCO3 eq. (%)	Org. C (%)	Total N (%)	C/N	E.C. (mS/cm)	Sat. H2O (%)	Cations in Saturation Extract (me/l)			
							Na	K	Ca	Mg
LF	-	30.30	1.62	19	-	-	-	-	-	-
Ae1	-	0.59	0.05	12	-	-	-	-	-	-
Ae2	-	0.40	0.06	7	-	-	-	-	-	-
AB	-	0.36	0.05	7	-	-	-	-	-	-
Bt1	-	0.44	0.05	9	-	-	-	-	-	-
Bt2	-	0.45	0.05	9	-	-	-	-	-	-
C	-	-	-	-	-	-	-	-	-	-

Hori.	TEC (me/100g)	Exchange Cations (me/100g)				Base Sat. (%)	Perm. Charge CEC (me/100g)				Base Sat. (%)
		Na	K	Ca	Mg		Al	Ca	Mg	Total	
LF	77.1	0.2	2.8	65.2	12.6	100	1.1	90.0	21.8	112.9	99
Ae1	4.9	0.02	0.1	1.1	0.5	35	1.4	1.7	0.9	4.0	65
Ae2	10.3	0.03	0.2	2.6	1.4	41	2.1	2.9	2.1	7.1	70
AB	17.1	0.1	0.3	5.3	3.2	52	3.3	7.8	5.8	16.9	80
Bt1	24.8	0.1	0.4	8.3	6.3	61	3.2	11.3	6.9	21.4	85
Bt2	25.9	0.1	0.4	9.7	7.1	67	1.9	13.3	9.6	24.8	92
C	22.7	0.1	0.4	10.9	7.1	81	0.3	14.6	9.9	24.8	99

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2. Walleye and goldeye fisheries investigations in the Peace-Athabasca Delta --1975.
3. Structure of a traditional baseline data system. 1976.
4. A preliminary vegetation survey of the AOSERP study area. 1976.
5. The evaluation of wastewaters from an oil sand extraction plant. 1976.
6. Housing for the north--the stackwall system; construction report--Mildred Lake tank and pump house. 1976.
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10. Development of a research design related to archaeological studies in the Athabasca oil sands area. 1977.
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15. A climatology of low-level air trajectories in the Alberta oil sands area. 1977.
16. The feasibility of a weather radar near Fort McMurray, Alberta. 1977.
17. A survey of baseline levels of contaminants in aquatic biota of the AOSERP study area. 1977.

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26. Interim report on an intensive study of the fish fauna of the Muskeg River watershed of northeastern Alberta. 1977.

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28. Interim report on a soils inventory in the Athabasca oil sands area. 1978.

29. An inventory system for atmospheric emissions in the AOSERP study area. 1978.

30. Ambient air quality in the AOSERP study area, 1977.

31. Ecological habitat mapping of the AOSERP study area: Phase I. 1978.

32. AOSERP third annual report, 1977-78.

33. Relationships between habitats, forages, and carrying capacity of moose range in northern Alberta. Part I: moose preferences for habitat strata and forages. 1978.

34. Heavy metals in bottom sediments of the mainstem Athabasca River upstream of Fort McMurray: Volume I. 1978.

35. The effects of sedimentation on the aquatic biota. 1978.

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37. Community studies: Fort McMurray, Anzac, Fort MacKay. 1978.

38. Techniques for the control of small mammal damage to plants: a review. 1979.

39. The climatology of the AOSERP study area. 1979.

40. Mixing characteristics of the Athabasca River below Fort McMurray-- winter conditions. 1979.

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45. Interim report physiology and mechanisms of air-borne pollutant injury to vegetation, 1975 to 1978.

46. Interim report on ecological benchmarking and biomonitoring for detection of air-borne pollutant effects on vegetation and soils, 1975 to 1978.

47. A visibility bias model for aerial surveys of moose in the AOSERP study area. 1979.

48. Interim report on a hydrogeological investigation of the Muskeg River basin, Alberta. 1979.

49. The ecology of macrobenthic invertebrate communities in Hartley Creek, northeastern Alberta.

50. Literature review on pollution deposition processes. 1979.

51. Interim compilation of 1976 suspended sediment data for the AOSERP study area. 1979.

52. Plume dispersion measurements from an oil sands extraction plant, June 1977.

53. Baseline states of organic constituents in the Athabasca River system upstream of Fort McMurray. 1979.

54. A preliminary study of chemical and microbial characteristics of the Athabasca River in the Athabasca oil sands area of northeastern Alberta. 1979.

55. Microbial populations in the Athabasca River. 1979.

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59. Semi-aquatic mammals: annotated bibliography. 1979.

60. Synthesis of surface water hydrology. 1979.

61. An intensive study of the fish fauna of the Steepbank River watershed of northeastern Alberta. 1979.

62. Amphibians and reptiles in the AOSERP study area. 1979.

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74. Air quality modelling and user needs. 1979.

75. Interim report on a comparative study of benthic algal primary productivity in the AOSERP study area. 1979.

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77. Overview of local economic development in the Athabasca oil sands region since 1976. 1979.

78. Habitat relationships and management of terrestrial birds in northeastern Alberta. 1979.

79. The multiple toxicity of vanadium, nickel, and phenol to fish. 1979.

80. History of the Athabasca oil sands region, 1890 to 1960's. Volume I: socio-economic developments. Volume II: oral history. 1980.

81. Species distribution and habitat relationships of waterfowl in in northeastern Alberta. 1979.

82. Breeding distribution and behaviour of the White Pelican in the Athabasca oil sands area. 1979.

83. The distribution, foraging behaviour and allied activities of the White Pelican in the Athabasca oil sands area. 1979.

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98. Baseline condition of jack pine biomonitoring plots in the Athabasca oil sands area: 1976-1977.

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101. Woodland caribou population dynamics in northeastern Alberta. 1980.

102. Wolf population dynamics and prey relationships in northeastern Alberta.

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